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November 3, 2009

Mr. John Cruden
Acting Assistant Attorney General
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611
Washington, D.C. 20044-7611

RE: United States, et al. v. George A. Whiting Paper Co., et al.

D.J. Ref. 90-11-2-1045/7

Dear Mr. Cruden:

Appleton Papers Inc. ("API") and NCR Corporation ("NCR"), through the undersigned, respectfully submit, for the consideration of the U.S. Department of Justice Environment and Natural Resources Division ("DOJ") and other interested persons, this Comment in opposition to entry of the Consent Decree with the City of De Pere, Wisconsin, proposed in the case of *United States, et al. v. George A. Whiting Paper Company, et al.*, Case No. 09-CV-00692-WCG in the United States District Court for the Eastern District of Wisconsin – Green Bay Division ("De Pere Consent Decree").

This Comment is filed for DOJ's full and formal consideration in response to the Notice in the Federal Register dated October 8, 2009 (74 Fed. Reg. 194).

The De Pere Consent Decree reflects that the United States and the State of Wisconsin, as well as the Oneida Tribe of Indians of Wisconsin and the Menominee Indian Tribe of Wisconsin ("the Tribes") have entered into a *de minimis* settlement with the City of De Pere ("De Pere")¹, a party responsible for contaminating the Lower Fox River ("LFR") with polychlorinated biphenyls ("PCBs").

Section 122(g) of the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), 42 U.S.C. § 9622(g), which provides the criteria for properly entering *de minimis* settlements in CERCLA actions, states as follows:

(g) De minimis settlements

¹ The City of De Pere's involvement in this action stems from its former ownership and operation of the De Pere Wastewater Treatment Plant. For ease of reference, the City of De Pere and the De Pere Wastewater Treatment Plant will be collectively referred to as "De Pere."

(1) Expedited final settlement

Whenever practicable and in the public interest, as determined by the President, the President shall as promptly as possible reach a final settlement with a potentially responsible party in an administrative or civil action under section 9606 or 9607 of this title if such settlement involves only a minor portion of the response costs at the facility concerned and, in the judgment of the President, the conditions in either of the following subparagraph (A) or (B) are met:

- (A) Both of the following are minimal in comparison to other hazardous substances at the facility:
 - (i) the amount of the hazardous substances contributed by that party to the facility.
 - (ii) the toxic or other hazardous effects of the substances contributed by that party to the facility.
- (B) The potentially responsible party -
 - (i) is the owner of the real property on or in which the facility is located;
 - (ii) did not conduct or permit the generation, transportation, storage, treatment, or disposal of any hazardous substance at the facility; and
 - (iii) did not contribute to the release or threat of release of a hazardous substance at the facility through any action or omission.

Paragraph S(3) of the De Pere Consent Decree clearly demonstrates that the anticipated *de minimis* settlement is based on the provisions of Section 122(g)(1)(A).² However, as explained below, the standards set forth in that subsection have not yet been met; consequently, the proposed *de minimis* settlement is premature.

² "The amount of hazardous substances contributed to the Site by the Settling Defendant and the toxic or other hazardous effects of the hazardous substances contributed to the Site by the Settling Defendant are minimal in comparison to other hazardous substances at the Site within the meaning of Section 122(g)(1)(A) of CERCLA, 42 U.S.C. §§ 9622(g)(1)(A)." De Pere Consent Decree, ¶ S(3).

A. The Investigation Into the De Pere's Discharges of PCBs Into the LFR Has Been Inadequate; Therefore, There is No Basis for Finding that the De Pere's PCB Discharges were Minimal. [Section B covers toxicity, so that's why I suggested removing this phrase here]

The investigation into PCB contamination of the LFR that led up to the lodging of the De Pere Consent Decree has been flawed because it centered on an erroneous assumption: that PCB contamination of the LFR solely results from the manufacturing and recycling of NCR Paper®-brand carbonless copy paper ("CCP") that contained PCBs. As a result, investigation into whether De Pere discharged PCBs into the LFR has been inadequate. Until such an investigation is undertaken and completed, it cannot be determined whether the volume or toxicity of PCBs contributed to the LFR by De Pere is minimal or accounts, as the proposed settlement posits, for only 0.014% of the total liability.

A brief explanation of the history of PCBs is essential to this discussion. In 1929, Monsanto Chemical Company ("Monsanto") began commercially producing PCBs in the United States. (Ann Arbor Technical Services, Inc., Technical Memorandum, dated August 20, 2009 ("ATS Report"), p. 4.) PCBs is a generic term; in fact, Monsanto produced and sold eight different PCB mixtures. (Id.) Monsanto identified these mixtures as Aroclor 1221, Aroclor 1232, Aroclor 1242, Aroclor 1248, Aroclor 1254, Aroclor 1260, Aroclor 1262 and Aroclor 1268. (Id.)

It is well documented and undisputed that from 1954 to 1971, NCR utilized only Aroclor 1242 in the production of CCP. (<u>Id.</u>, p. 14.) However, this was not the sole industrial use of Aroclor 1242. In fact, after 1929, Aroclor 1242 was utilized by manufacturers and/or end users of many products, including electrical transformers, hydraulic fluids, rubber plasticizers, adhesives, wax extenders and gas transmission turbine lubricants. (<u>Id.</u>, pp. 10-11.) Aroclors 1254, 1260 and 1268 also were commonly used in electrical transformers, hydraulic fluids, rubber plasticizers, adhesives and wax extenders, as well as in capacitors, cutting oils, vacuum pump fluids, paint plasticizers, synthetic resin plasticizers, sealants and caulking compounds, inks, de-dusting agents and pesticide extenders. (<u>Id.</u>, p. 11.)

As a result of their widespread use, many different Aroclors were discharged into the LFR. In 2008, API retained Ann Arbor Technical Services, Inc. ("ATS"), to conduct an investigation into causes of PCB contamination of the LFR and the parties potentially responsible for such contamination. (<u>Id.</u>, p. 1.) API pursued this investigation in order

to determine whether parties identified by the Government as minor players due to their allegedly minimal or non-existent role in the manufacture or recycling of carbonless copy paper, including De Pere, were, in fact, more substantial dischargers.

In conjunction with this investigation, ATS collected sediment samples for PCB analysis at 127 locations throughout the LFR. (<u>Id.</u>, p. 9.) Testing detected Aroclor 1242 at 99 of the 127 sampling locations and Aroclors 1254, 1260 and 1268 at 66 of these 127 locations. (<u>Id.</u>) Significantly, non-1242 Aroclors were detected in sediments obtained from areas adjacent to and downstream from De Pere. (<u>Id.</u>, Figures 3 and 4, Attachment B.)

It is important to note that ATS's analytical work on LFR sediment focused on a comprehensive quantification of the presence of all Aroclors. Earlier laboratory work on Fox River samples did not share that focus. This is the result of the inherent bias within the method used by the Wisconsin Department of Natural Resources ("WDNR") for PCB sampling in the river, commonly referred to as the Fox River Method.

EPA standard laboratory methodology requires quantification of all Aroclor patterns. The Fox River Method, however, allows for laboratory technician discretion as long as the 'target analyte' (i.e., Aroclor 1242) is quantified. In other words, when applying the Fox River Method, a technician can quantify only Aroclor 1242, ignore quantifying non-1242 components, and comply with laboratory reporting requirements.

This approach resulted in repeated bias by truncating the reporting levels for Aroclors other than Aroclor 1242. A secondary consequence of this approach is the reporting of non-Aroclor 1242 mass as Aroclor 1242. For example, in a significant portion of the sample results reported in years prior to the Phase 1 2004/2005 data set, non-1242 Aroclors are reported as "not detected" unless their presence equaled or was just below the level of Aroclor 1242 present in the sample. (Id., p. 7.) Therefore, if non-1242 Aroclors "were present at 25 to 50 percent of the concentration of Aroclor 1242 it would be reported as "not detected" and the portion outside the Aroclor 1242 congener pattern would not be included in the calculation of Total PCB (which in the method is defined to be the sum of all Aroclors)." (Id.) Further, because Aroclor 1242 shares certain congeners with other Aroclors, this overlapping area of mass of non-1242 Aroclors often was reported as Aroclor 1242. Accordingly, ATS's testing more accurately depicts the presence of all Aroclors in LFR sediments than WDNR's earlier testing.

ATS next evaluated two additional data sets concerning the presence of Aroclors in the LFR: the LFR Phase I Sediment Data from 2004-2005 and the Fox River Fish Monitoring Data from 2006-2007. (Id., pp. 9-10.) The LFR Phase I Sediment Data measured the quantity of eight Aroclors (Aroclors 1221, 1232, 1016, 1242, 1248, 1254, 1260 and 1268) in 397 sediment samples taken from 51 locations in upper OU4. (Id., p. 10.) ATS's analysis of this data set revealed that 104 of the 397 samples contained non-1242 Aroclors at concentrations in excess of the level requiring remediation. (Id.) The LFR Phase I Sediment Data is directly relevant here, as De Pere discharged its effluent, which included treated wastewater sent to De Pere by U.S. Paper Mills Corporation (a significant PCB discharger) and International Paper Company's Nicolet Mill (a likely PCB discharger), into OU4. Further, the Fox River Fish Monitoring Data from 2006 and 2007 demonstrated that non-1242 Aroclors account for 48.8% to as much as 63.5% of the PCB contamination in LFR fish. (Id. at Attachment D.)

These three data sets, which consisted of 1,150 samples collected from numerous points along the LFR, demonstrate that four Aroclors are primarily responsible for PCB contamination of the LFR: Aroclor 1242, Aroclor 1254, Aroclor 1260 and Aroclor 1268. (Id. at 10.) While Aroclor 1242, the Aroclor used in CCP prior to 1971 as well as a host of other applications, is a major component of the contamination, other Aroclors, which were never used in CCP, are present in the LFR, both in sediment and in fish, at significant concentrations.

Using their testing results and the LFR Phase I Sediment Data, ATS calculated the relative abundance of Aroclor 1242 and other Aroclors in OU4 sediments as follows:

	Aroclor 1242	Other Aroclors
OU-4	87.0%	13.0%

(<u>Id.</u>, p. 12.)³ To validate this conclusion, ATS obtained access to this historical database used for LFR site characterization, which is a consolidation of data generated in multiple government-ordered investigations completed between 1980 and 2007. (PRP *de minimis* Settlement White Paper – Addendum, dated October 7, 2009 ("ATS Addendum"), p. 1.) This database of approximately 7,384 sediment sampling locations further confirms the significant presence of non-1242 Aroclors in OU4 and OU5:

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³ Values for OU-3 and OU-5 are not provided because data meeting the Data Quality Objective (DQO) for sampling were not available. (ATS Report, p. 10.)

	Non-1242 Aroclor %
OU-4	13.1%
OU-5 (IB)	18.8%
OU-5 (OB)	15.0%

It is clear that a significant amount of the PCB contamination of OU4 and OU5 sediments results from past discharges of non-1242 Aroclors. (See ATS Report, p. 15.) Because it is undisputed and well documented that CCP contained only Aroclor 1242, these discharges could not have resulted from the manufacturing and/or recycling of CCP; they resulted instead from discharges associated with other industrial processes.

However, the primary investigative efforts into causes of the PCB contamination of the LFR performed to date have not investigated these discharges of non-1242 Aroclors. These efforts include: (1) requests for information propounded in the 1990s to many potentially responsible parties, including De Pere, by the United States Department of Interior Fish & Wildlife Service ("FWS") pursuant to its authority under Section 104(e) of CERCLA, 42 U.S.C. § 9604(e) ("the 104(e) Requests"); (2) Preliminary Estimates of PCB Discharges to the Fox River 1954-1999, a report prepared by the United States in conjunction with the State of Wisconsin and the Tribes ("Amendola Report"); and (3) Technical Memorandum 2d: Compilation and Estimation of Historical Discharges of Total Suspended Solids and PCB from Lower Fox River Point Sources, a report compiled by WDNR ("Tech Memo 2d").⁴

The 104(e) Requests and responses to them, the Amendola Report and Tech Memo 2d all focused on Aroclor 1242 and carbonless copy paper sources of PCB contamination. According to the Amendola Report,

This brief report presents a summary of preliminary estimates of PCB discharges to the Fox River for the period 1954 to 1985 associated with the manufacture of NCR carbonless copy paper containing PCB emulsions and the distribution and recycle of NCR paper broke, NCR paper converter trim and secondary fiber containing PCBs.

⁴ As we understand that the United States, the State of Wisconsin and the Tribes are in possession of the 104(e) Requests and the responses to them, the Amendola Report and Tech Memo 2d, we have not attached these voluminous materials to this Comment. However, we would be happy to provide these materials upon request.

(Amendola Report, p. 1 (emphasis added).) Similarly, Tech Memo 2d, which estimates PCB load in the river, incorporates the same bias:

Given that PCBs in Lower Fox River sediments are *quantified almost* exclusively as Aroclor 1242, possible PCB releases attributable to sources other than NCR Paper are negligible by comparison. Therefore, no attempt was made to quantify discharges of Aroclors 1254 or 1248.

(Tech Memo 2d, p. 39 (emphasis added).)

The 104(e) Requests served on De Pere in 1997 shared this focus; virtually all of the questions concerned the potential for PCB discharges related to CCP. There was only one question that sought information regarding whether De Pere ever accepted for treatment process wastewaters or other materials from industrial uses, other than paper companies, that contained PCB compounds. (104(e) Requests to City of De Pere, dated July 1, 1997.) To this De Pere responded, "No, not to our knowledge." (City of De Pere's Responses to July 1, 1997, 104(e) Requests, dated September 2, 1997.) The Government never followed up on this inadequate answer in any way, and De Pere stated in 2008 that this response was true and correct. (Affidavit of Scott Thoresen, dated November 3, 2008.) This is troubling because the Government's own investigation shows it to be in error. As noted in Tech Memo 2d, De Pere was a discharger of Aroclor 1242 as well as Aroclors 1248 and 1254. (Tech Memo 2d, p. C-2.) As these higher-chlorinated Aroclors were never used in CCP, it is clear that De Pere did accept and treat wastewaters or other materials that contained PCB compounds. The sources of these wastewaters or other materials, as well as De Pere's discharge of the PCBs contained therein, have never been investigated.

In addition to these uninvestigated discharges of non-1242 Aroclors, De Pere likely discharged significant amounts of Aroclor 1242 to the LFR as a result of accepting and treating process wastewater from U.S. Paper beginning in 1970. Instead of accepting this likelihood, De Pere attempted to minimize the relevance of its connection with U.S. Paper by claiming that its could not have discharged significant amounts of PCBs by treating U.S. Paper's process wastewater because, per Tech Memo 2d and the Amendola Report, U.S. Paper was a *de minimis* PCB discharger. (City of De Pere Position Statement.) It has become clear, however, that Tech Memo 2d and the Amendola Report wrongly characterized U.S. Paper as a *de minimis* discharger; in fact, U.S. Paper caused the single-most PCB-contaminated area of the LFR. Supplementary

104(e) responses by U.S. Paper also confirmed that it used substantial quanitites of CCP broke and paper in its processes. Therefore, De Pere's assertion that it could not have received and subsequently discharged significant amounts of PCBs from U.S. Paper is unfounded.

It is clear that De Pere's discharges of Aroclors into the LFR has not been investigated sufficiently. Based on the De Pere's status as an owner/operator of a wastewater treatment plant⁵, a complete and thorough investigation into its historic discharges of Aroclors may reveal its liability for discharges of Aroclors into the LFR is anything but de minimis. Such an investigation is necessary and must be performed before a de minimis settlement can be determined to be appropriate.

B. Whether the Toxic or Other Hazardous Effects of the PCBs Discharged by De Pere to the LFR are Minimal Has Not Been Established.

A de minimis settlement under Section 122(g)(1)(A) of CERCLA, 42 U.S.C. § 9622(q)(1)(A), must meet both criteria set forth in subsections (i) and (ii). Under subsection (ii), the de minimis settlement is appropriate only if the toxic or other hazardous effects of the PCBs De Pere discharged into the LFR are minimal in comparison to other PCBs discharged. This has not been established. In fact, the non-1242 Aroclors that De Pere discharged into the LFR are more toxic and hazardous than PCBs discharged into the LFR as a result of the production and/or recycling of NCR Paper.

"The ecologic and human health toxicities are not uniform among the various Aroclors." (ATS Report, p. 12.) Since the 1970s, it has been commonly understood that "Aroclors with higher chlorine content (e.g. 1254, 1260 and 1268) have higher bioconcentration potential and generally greater toxicity to fish and higher organisms, including man." (Id. (citation omitted).) EPA recognizes this fact, considering Aroclor 1254 to be over three times more toxic than Aroclor 1016. (US EPA Integrated Risk Information System for Aroclor 1254, at http://www.epa.gv/ncea/iris/subst/0389.htm, and US EPA Integrated Information System for Aroclor 1016, at http://www.epa.gov/ncea/iris/ subst/0462.htm.) Further, the EPA's own dose-response data confirms that exposure to Aroclor 1254 is nearly twice as likely to cause tumors in female rats as identical exposure to Aroclor 1242. (US EPA Integrated Risk Information System regarding Reference Dose fo Chronic Oral Exposure of Polychlorinated Biphenyls (PCBs), at http://www.epa.gov/ncea/iris/subst/0294.htm.)

⁵ Municipal wastewater treatment plants have long been known to be one of the primary sources of PCB contamination in waterbodies. Kleinert, Stanton J. The PCB Problem in Wisconsin 4 (1976).

ATS's analysis of the Fox River Fish Monitoring Data for the presence of Aroclor 1242, as compared to the presence of other Aroclors, confirms this position. Using average fish tissue concentrations, ATS calculated the relative abundance of Aroclor 1242 and other Aroclors in fish tissue as follows:

	Aroclor 1242	Other Aroclors
OU-4	51.2%	48.8%
OU-5	37.6%	62.4%

(<u>ld.</u>, p. 12.)

This table clearly demonstrates that PCBs bioconcentrated in the tissue of OU4 and OU5 fish consist primarily of non-1242 Aroclors. De Pere discharged non-1242 Aroclors into the OU4. Until a complete and thorough investigation into these discharges is performed, the *de minimis* settlement is premature.

C. Whether De Pere's Share for the PCB Contamination is Divisible Has Not Yet Been Established.

As the EPA is undoubtedly aware, De Pere is a defendant in pending litigation⁶ in which API and NCR seek a determination of all parties' divisible shares of the PCB contamination of the LFR. If the Court determines that the PCB contamination is divisible, there is a strong likelihood that the paltry settlement amount to be paid by De Pere will neither meet nor exceed the cost of remediating De Pere's divisible share of the contamination. If this occurs, the public will be forced to incur the remaining amount. Such a result would contradict the express purpose of settlements pursuant to CERCLA § 122, which provides that *de minimis* settlements must be in the public interest. 42 U.S.C. § 9622(g)(1). Therefore, until the Court determines divisibility, the De Pere Consent Decree should be withdrawn in order to guarantee protection of the public interest.

⁶ Appleton Papers Inc., et al. v. George A. Whiting Paper Company, et al., Case No. 08-CV-00016-WCG in the United States District Court for the Eastern District of Wisconsin – Green Bay Division.

Conclusion

Pursuant to Section 122(g)(1)(A) of CERCLA, 42 U.S.C. § 9622(g)(1)(A), the propriety of the *de minimis* settlement between the United States, the State of Wisconsin, the Tribes and De Pere, as reflected in the proposed Consent Decree, hinges on two points: (1) whether De Pere's discharges of PCBs into the LFR are minimal in comparison to other discharges of PCBs into the LFR; and (2) whether the toxic or other hazardous effects of the PCBs discharged by De Pere are minimal in comparison to the effects of other PCBs discharged into the LFR. Due to the inadequacy of the investigation into past discharges of non-NCR Paper-related Aroclor 1242 and non-1242 Aroclors by De Pere, neither of these conditions has been satisfied. Accordingly, the De Pere Consent Decree should be withdrawn as premature.

Please feel free to contact us with any questions regarding the above. Thank you.

Sincerely,

HERMES LAW, LTD.

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Counsel for Appleton Papers Inc.



TECHNICAL MEMORANDUM

To: Michael L. Hermes, Hermes Law Ltd.

From: Philip B. Simon

Date: August 20, 2009

Re: PRP de minimis Settlement White Paper

Lower Fox River, Wisconsin

Retention and Qualifications of Expert

Ann Arbor Technical Services, Inc. ("ATS") was retained by Metzler Timm Treleven & Hermes, S.C. (MTTH) on behalf of Appleton Papers Inc. to conduct an investigation of potential responsible parties (PRP) for Aroclor 1242 and all other identifiable PCB contamination of Fox River sediments. This investigation is being undertaken in support of litigation pending in the Eastern District of Wisconsin federal court, *Appleton Papers Inc.*, et al v. George A Whiting Paper Company, et al., 08-CV-16. Written authorization for this effort was issued by MTTH on October 7, 2008. Effective January 2, 2009, Hermes Law, Ltd., retained ATS to continue its investigation.

My name is Philip B. Simon. I currently hold the joint position of President and Director of Chemistry for Ann Arbor Technical Services, Inc.. I am a graduate of the University of Michigan, and have been a consulting chemist for 39 years. My practice is specialized in the areas of analytical, environmental and forensic chemistry. I am an expert in analytical method development/validation, and in chemometric analysis for forensic purposes.

Over the years of my practice, I have been a principal investigator in more than 100 projects involving inorganic and organic chemicals in the environment. Twenty-one of those projects have involved PCBs as the primary chemicals of interest. Other projects have involved chlorinated dioxins and dioxin-like compounds, solvents, toxic metals, explosives and many specific compounds used in agriculture or industry. I have authored numerous papers and presentations concerning the analysis, fate and effects of chemicals in the environment. I currently hold eleven U.S. patents and patents pending for environmental innovations and chemical processes, and have a number of patents pending in foreign nations. I have been qualified as an expert witness more than 30 times in litigation matters involving my areas of expertise.

Twenty-six years of my practice have been with ATS. For that time, I have directed the technical aspects of the specialized analytical chemistry laboratories ATS operates in support of

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its consulting business. These laboratories include in-house capabilities for atomic spectroscopy, tandem mass spectrometry, and all major forms of chromatography, dedicated to the analysis of a wide range of chemicals in environmental media. ATS laboratories are certified by the State of Wisconsin for the analysis of PCBs in environmental media.

ATS is charging its normal prevailing rates for this work, regardless of the outcome of my findings or the lawsuit. The billing rate for my time is \$175.00 per hour for regular project work, and \$350.00 per hour for deposition and court time. The ATS corporate fee schedule and my professional resume have been supplied to the court separately.

Introduction

The U.S. Department of Justice (DOJ) is proposing a de minimis settlement for eleven parties in connection with their remediation obligations arising out of the release of contamination into the Lower Fox River (LFR). The purpose of this white paper is to examine technical considerations with respect to these proposed de minimis settlements. It will be shown based on these technical considerations that the existing site information and empirical data are inadequate to determine whether these parties have a de minimis share at this time.

According to EPA guidance (OSWER Directive #9834.7-1D), "Under Section 122(g) of CERCLA the Agency may settle with persons who contributed to a facility hazardous substances which are minimal, both in terms of volume and toxicity or other hazardous effects, relative to other hazardous substances at a site. De minimis settlements may only address a minor amount of response costs at a site" (OSWER Directive #9834.7-1D, page 1). This guidance document published by USEPA includes an accounting of de minimis settlements to date. While acknowledging the Agency has not established a set percentage of eligibility, of those settlements to date, the range was 0.07 % to 10.0 %, with a mean of 1.059 % and a median of 1.00 %.

The DOJ has proposed a de minimis settlement in the amount of \$1,800,000 for the following group of 11 LFR PRPs:

George Whiting Paper Corporation

Green Bay Metropolitan Sewerage District

Green Bay Packaging Inc.

Heart of the Valley Metropolitan Sewerage District

International Paper Company

Lafarge North America Inc.



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Leicht Transfer & Storage Co.

Neenah Foundry Co.

Procter & Gamble Paper Products Co.

Union Pacific Railroad Co.

Wisconsin Public Service Corp.

The comprehensive cost identified by USEPA as a basis for settlement is \$1,500,000,000. To qualify for a de minimis settlement, the court must conclude that these 11 parties contributed minimal quantities of PCBs that are not significantly more toxic and not of significantly greater hazardous effect, the corresponding costs for the PCBs attributable to their operations are also minimal, and the proposed settlement is therefore eligible for de minimis consideration. This total proposed de minimis settlement with eleven different parties represents 0.12 % of the anticipated Fox River comprehensive costs.

LFR Site and Settlement Background

The EPA's NPL Site Narrative for the LFR asserts that "as a result of paper mill operations, sediments in the Fox River have become contaminated with polychlorinated biphenyls (PCBs)"(Federal Register Notice, July 28, 1998). The EPA's currently posted fact sheet states that "PCBs were used in manufacturing carbonless copy paper between 1957 and 1971" and that "(t)he greatest discharge of PCBs into the Fox River has been from facilities which recycled carbonless copy paper", specifically, "(t)he greatest discharge of PCBs into the Fox River were from facilities which deinked and re-pulped carbonless copy paper." (EPA ID# WI0001954841, last updated April, 2008).

The EPA's fact sheet does acknowledge that "PCBs have been detected in effluent of other paper mills which did not process carbonless copy paper, and effluent of POTWs which received wastewater from paper mills. PCBs have also been detected in effluent samples collected from Neenah Foundry." Despite this, manufacturing and recycling of NCR paper has been and continues to be the primary focus of the regulatory agencies' assessment of accountability with respect to remediating the LFR sediments. In fact, inadequate due diligence has been completed with respect to the identifying responsible parties except as it relates to the manufacture and/or recycling of carbonless copy paper.

The inadequacy of this selective focus on carbonless copy paper is best exemplified by recent activities surrounding the "Phase 1" area of LFR remediation in OU4. As part of the LFR remediation design process, detailed sediment characterization was completed in 2004. This effort revealed a significantly contaminated area of sediments adjacent to the U.S Paper operations in OU4, with PCB concentrations as high as 3,000 ppm. Previous due diligence by the DOJ had not identified U.S. Paper as a primary responsible party because they were unable to



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connect U.S. Paper with the use and/or recycling of carbonless copy paper. The remedial design sediment data established otherwise.

The purpose of this report is to present field data that indicate sources of significant amounts of PCB contamination have not been identified, to question the methodology used to allocate responsibility for the remediation and related obligations on the LFR, and to pose the challenge that adequate due diligence must be completed in order to understand the potential responsibility of the proposed de minimis settlement parties with respect to the tremendous and comprehensive obligations of remediation and natural resource damages associated with the LFR.

Commercial History of PCB Aroclor Mixtures

PCBs were produced commercially in the United States between 1929 and 1977. Approximately 99 percent of this production was attributable to Monsanto Chemical Company, which until 1971 produced and sold eight PCB mixtures including Aroclors 1221, 1232, 1242, 1248, 1254, 1260, 1262 and 1268. The first two digits in the naming scheme indicate the number of carbon atoms in the ring structure, and the last two indicate the average chlorine content by weight percent. (see Table 4-4, Attachment A).

In 1971, Monsanto voluntarily restricted the production of higher chlorinated PCBs, and reduced the product line to Aroclors 1221, 1242, 1254 and 1016 (Aroclor 1016 is an exception to the historic naming scheme, and is appreciably similar to Aroclor 1242 in composition). Monsanto sold these PCB products for use in both "open-ended" and "closed" applications until 1974, at which time Monsanto discouraged the use of Aroclor products in "open-ended" applications. Monsanto ceased domestic production of PCBs completely in 1977, shortly before the U.S. government banned most manufacturing and importation of the substances in 1979.

Analytical Chemistry

PCB compounds in environmental media are measured as Aroclor mixtures using USEPA methods 8080, 8081 or 8082. These methods incorporate pattern recognition of congeners based on their relative retention time in the chromatogram to differentiate one Aroclor mixture from another. A standard implementation of these USEPA methods yields identification and quantitation of the following Aroclors:

Aroclor 1221

Aroclor 1232

Aroclor 1016

Aroclor 1242

Aroclor 1248

Aroclor 1254



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> Aroclor 1260 Aroclor 1268

The Total PCB content of a sample using these methods is the <u>sum</u> of all these individual Aroclor mixture concentrations.

While there are congeners common to Aroclor mixtures of similar average chlorine content (e.g. the trichloro- and tetrachloro- congeners in Aroclor 1242 and Aroclor 1254), there are also congeners that they do not have in common. The greater the difference in average chlorine content the less commonality there is in the mixtures. For example, Aroclor 1242 has only a trace of hexachloro- congeners (0.31 weight percent) and no detectable levels of heptachloro- to decachloro- congeners, while these higher chlorinated congeners are major constituents in Aroclors 1254, 1260 and 1268 (see Attachment A: ATSDR, November 2000, Table 4-4).

USEPA 8082 specifically anticipates the possibility of multiple Aroclor residues occurring together and provides a basis to separate them using composition so long as the congener patterns evident in chromatograms reasonably match the original Aroclor products (see USEPA 8082A, February 2007, Tables 3 through 6). The method acknowledges the difficulty in quantifying Aroclor concentrations, and the total PCB concentration from Aroclor data, when congener patterns do not appreciably match Aroclor products, whether by "weathering" due to natural processes, waste treatment, or something else. When modified congener patterns are encountered, Method 8082 recommends using alternate, congener-specific methodology (e.g. USEPA 1668B).

For sediments from the Fox River, WDNR has adopted an adaptation of USEPA Method 8082 referred to as the "Fox River Method." This adaptation incorporates an air drying step to remove moisture, and a mechanical grinding step intended to rupture the microcapsules containing PCB oils in the carbonless copy paper matrix. Other aspects of this adapted method include an abbreviated set of cleanup steps, based on interferences normally encountered in the Fox River sediment matrix. The "Fox River Method" can be used to quantitate and report all Aroclors specified in the USEPA PCB methods, though from a review of the Fox River site database that has not always been the practice.

"Weathering" of multi-component chemical mixtures such as Aroclors results from differential action on individual congeners, based on differences in molecular structure and activity. Some investigators define "weathering" as resulting only from physiochemical processes that do not chemically alter the individual congeners (Stratus Consulting Inc., August 30, 1999). Others take a broader view and include chemical and biochemical processes that produce chemical transformation (National Research Council, Committee on Remediation of PCB-Contaminated Sediments, 2001). Either way, the pattern of compounds in a "weathered" Aroclor chromatogram is distinctly different when compared to the chromatogram of the "unweathered" parent material, and this can make chromatograms difficult to interpret.



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Physiochemical weathering results in selective enrichment or depletion of lower or higher chlorinated congeners, depending on the process (e.g. dissolution, evaporation, sorption). Chemical and biochemical weathering results in selective changes in the relative composition due to hydroxylation, dechlorination, or other chemical reactions that can take place in natural media. Reaction rates for dechlorination, in particular, are very sensitive to chlorine content of the molecule, proceeding relatively rapidly in PCBs with three chlorines or less and much slower, if at all, in congeners with more than three chlorines per molecule. Neither physiochemical nor chemical/biochemical "weathering" can add chlorine to a biphenyl molecule. As a result, no amount of sediment "weathering" will make Aroclor 1242 appear in properly resolved chromatograms as Aroclor 1254, Aroclor 1260, or Aroclor 1268.

In all three of the USEPA 8000 series PCB methods, and the WNDR "Fox River Method", there is a fundamental analytical limitation in differentiating Aroclors 1016, 1242 and 1248 when they co-occur because of the similarity in their composition. For practical purposes, it is nearly impossible to quantify one of these three Aroclors in the presence of the other two. The selection of which Aroclor to report depends on knowledge, or presumption, of the source material from which the contamination is derived.

LFR Focus on Aroclor 1242

PCB contamination of sediments in the Fox River, Wisconsin is well documented, and generally is considered to have resulted from use of a specific PCB product, Monsanto Aroclor 1242, in carbonless copy paper. Wastewater discharges associated with the production of carbonless copy paper, and processing of recycled paper pulp, resulted in releases of PCB to the Fox River. However, given the urbanization and industrialization of the Fox River watershed, and the widespread use of PCB materials in multiple commercial products, it is very unlikely that Aroclor 1242 would be the only PCB material present in Fox River sediments and it is also unlikely that carbonless copy paper would be the only source of Aroclor 1242.

PCBs are common contaminants in the sediments of rivers, lakes, estuaries and harbors when the watersheds include industrial activities. This is true for countries around the world. In most cases, multiple PCB mixtures – Aroclors, or the commercial equivalents depending on country – are found in the deposited sediments. In North America, the well known PCB contamination problem in sediments of the Hudson River, New York involves multiple Aroclors (Bopp, 1982). Multiple Aroclors are also found in the sediments of the lower Passaic River in New Jersey (Wenning, 1994), and sediments from the St. Clair River in the Great Lakes (Oliver, 1985). In France, sediments of the Seine River contain the equivalents of Aroclors 1242, 1254 and 1260 (Chevreuil, 1998). A recent study to reconstruct Aroclors mixture information from patterns in PCB congener data in walleye from the Fox River found that the best match was a mixture of Aroclors 1242, 1248, 1254 and 1260 (Kostyniak, 2005).



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Despite the near ubiquity of PCBs in river sediments throughout the industrialized world, remedial investigation work on PCBs in Fox River sediments has focused virtually exclusively on Aroclor 1242 and the carbonless copy paper source. While WNDR in Tech Memo 2D acknowledges the wide spread use of PCBs in commercial products, and findings of Aroclors 1248 and 1254 in effluent streams to the Fox River, they nevertheless dismiss these as being "negligible" and do not consider them further (WDNR, February 1999). The Natural Resource Damage Assessment completed for the U.S. Government considers only Aroclor 1242 and the carbonless copy paper source (Stratus Consulting Inc., August 1999). The same is true for the U.S. Government study of PCB discharges to the Fox River (Amendola, May 2000).

This focus on Aroclor 1242 has been amplified by the way PCB data have been generated in recent years using the "Fox River Method" of testing. For a substantial percentage of the site data generated up to 2001, PCB results have been negatively biased by truncating the reporting levels for Aroclors other than 1242. This is done by raising the quantification limit for other Aroclors, in some cases to levels at or just below the concentration at which Aroclor 1242 is being reported. In such data sets, even if Aroclor 1254 were present at 25 or 50 percent of the concentration of Aroclor 1242 it would be reported as "not detected" and would not be included in the calculation of Total PCB (which in the method is defined to be the sum of all Aroclors). The result is a negative bias in the Total PCB concentration, and a distorted picture of the Aroclor distribution in the sediments that indicates only Aroclor 1242 is present when, in fact, that is not the case. This has had obvious implications in the effort to allocate responsibility for sediment contamination.

ATS Study - Fall 2008

Sample Location Selection

To select sampling locations, the existing LFR data set for PCB site characterization was reviewed. Subsequently, a desktop geomorphic analysis was conducted to identify probable zones of deposition for soft and unconsolidated sediments, adjacent to and downstream from identified PRP locations along the entire length of the Fox River from Lake Winnebago to its terminus at Green Bay. The desktop analysis utilized aerial photographs to assess river flow patterns, since high resolution bathymetry was not available for much of the river. Sampling locations were proposed for deposits along river banks, proximate to and in a linear pattern downstream from known or suspected outfall locations. For outfalls discharging into the center of the channel, locations were arrayed contiguous to and downstream from, the known or suspected outfall location. A total of approximately 250 proposed sampling locations were identified in the desktop analysis.

It was not expected that this sampling effort alone would allow the specific characterization of contamination associated with specific discharge points. This limitation is due to the dynamic nature of fluvial conditions associated with a river, the long history of industrial activity on and within the Fox River basin, the overlapping nature of potential areas of



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impact and the extensive anthropogenic influences on river processes and river sediments of the Lower Fox River, particularly in the lower portion of the river (OU-4).

Each proposed location was field verified prior to sampling, using a crew consisting of a geomorphologist and registered land surveyor. Soft sediment deposits were identified using manual sediment poling. Once a target deposit was located, precision coordinates (northing and easting) were established with a surveyor grade Leica GPS instrument, and a labeled and weighted buoy was dropped to mark the location for the sampling crew. This last step was modified part way through the sampling program due to the onset of early winter conditions and substantial ice formation each night. During the later portion of the field program, the field verification crew worked with and immediately ahead of the drilling/sampling crews so that the buoy drop was not necessary. Field verification resulted in moving or eliminating certain proposed locations due to the absence of soft sediment deposits or interference with underground utilities that would have made drilling/sampling unsafe.

Sampling Effort

The sediment core sampling was conducted during the period from November 18 through December 16, 2008, using three GeoMorph™-trained sampling crews, and a combination of manual and sonic drilling systems. Because of the importance of properly profiling the organic silt layers, and the reported occurrence of an unconsolidated silt layer at the water/sediment interface ("nepheloid layer"), an open core barrel check valve sampler was used for the first sampling interval, to sediment depths of 5.0 feet. Minimum core recovery of 80 percent was set as a Data Quality Objective (DQO) for sampling.

The conduct and procedures for these sampling crews were governed by a Health & Safety Plan (HASP) and Quality Assurance Project Plan (QAPP) prepared by ATS for this project. The QAPP contains Standard Operating Procedures for station locating, sediment poling, core drilling, core processing and logging, soil/sediment classification, and chemical analysis. These documents are available upon request.

Sediment Coring Logging and Sample Analysis

Once removed from the sampling core barrels, sediment cores in capped polymeric liners were stored in a vertical position to maintain their stratigraphic integrity and transported to a temporary ATS soils laboratory in Appleton, Wisconsin. There the core liners were drained of free liquid, laid in a horizontal position and opened by shearing away half of the liner. Following protocols specified in the QAPP, each core was logged for stratigraphic sequence, and individual sediment layers were classified for soil/sediment type using both the USCS and USDA soil classification systems. Distinct layers were isolated and subsampled for PCB analysis using a layer-based strategy.

All samples for chemical analysis were delivered to Pace Laboratories in Green Bay, Wisconsin for analysis of PCBs and moisture content according to the WDNR and stakeholder



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approved "Fox River Method." Consistent with USEPA Method 8082, ATS required Pace to report seven Aroclor mixtures (Aroclor 1221, 1232, 1242, 1248, 1254, 1260 and 1268), and quantitate non-predominant Aroclors to a reporting level of not greater than 10 percent of the predominant Aroclor present in the sample. Pace Laboratories does not do real-time data validation, so post analysis validation of these datasets was obtained from MAKuehl Company to assure that these data met Lower Fox River remediation project DQOs.

Geodatabase Data Management/GeoPortal Data Access

All data management for this project was electronically based. ESRI ArcGIS Server was used as the core database application. Tablet-style computers tethered to Leica GPS units were used for acquisition of field measurements. GIS workstations were used in the soils laboratory for core logging, soil/sediment classification, and COC generation. Pull-down menus were used where possible to minimize human data entry errors. Embedded QA/QC checks were integrated to assure valid data were entered into the geodatabase. Electronic data deliverables incorporating project-specific QA/QC data were used for PCB and other chemistry data.

With numerous team members participating at various levels in the project, there was a substantial need for real-time data access. Accordingly, the geodatabase was made available through the internet-accessible ATS GeoPortal. This interactive GIS application allowed users to navigate the study area choosing user-selected GIS layers. High quality map layers were available, including imagery, bathymetry where available, dam locations, river access designations, proposed sampling locations, completed sampling locations, and similar information layers. Near-real-time data entry allowed progressive tracking of project tasks and information.

ATS Findings

Core samples were collected at 127 locations. The cores were subsampled based on geomorphologic layering, resulting in 272 samples for PCB analysis. An additional 28 samples were analyzed as part of the QA/QC effort. **Aroclor 1242** was detected in one or more stratigraphic layers at 99 of the 127 sampling locations. In addition, three other Aroclor mixtures were detected at 66 of the 127 sampling locations:

Aroclor 1254 Aroclor 1260 Aroclor 1268

Aroclor data for each location and sample interval are presented in Attachment B. The spatial distribution of Aroclor 1242 and other Aroclor data is represented graphically in Figures 1 through 4.



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Additional Data Sets

For purposes of this investigation, two additional Fox River data sets were evaluated. Both were acquired relatively recently, and most importantly both generally met the Aroclor reporting level DQO stated above.

LFR Phase I Sediment Data: 2004-2005

This is a data set consisting of 397 sample results from sediment cores collected at 51 locations in upper OU-4 as part of the Phase I time-critical remediation of that OU. Sediment cores were subsampled on a fixed interval basis rather than by stratigraphic layer. PCB analyses were conducted by Pace Laboratories using the "Fox River Method." The laboratory quantitated eight Aroclors (1221, 1232, 1016, 1242, 1248, 1254, 1260 and 1268), though Aroclor 1268 was not reported consistently. Aroclor data for each location and sample interval are presented in Attachment C.

Of the Phase I data set, 104 of the 397 samples collected (26.4%) contained non-1242 PCB concentrations in excess of the LFR remedial action level and therefore would require remedial action irrespective of the Aroclor 1242 concentration.

Fox River Fish Monitoring Data: 2006-2007

This is a data set consisting of 481 fish tissue sample results from fish collected across the OUs as part of on-going biomonitoring. PCB analyses were conducted by Pace Laboratories using USEPA Method 8082. The laboratory quantitated eight Aroclors (1221, 1232, 1016, 1242, 1248, 1254, 1260 and 1268), through Aroclor 1268 was not reported consistently. Aroclor data for the fish samples are presented in Attachment D, along with histogram charts indicating the Aroclor distribution as a function of OU.

Analysis and PCB Sources

The three Fox River data sets examined comprise a total of 1,150 samples collected along the length of the Fox River, during the period from 2004 through 2008. They are remarkably consistent in indicating the following Aroclors are responsible for PCB contamination in Fox River sediments:

Aroclor 1242 Aroclor 1254 Aroclor 1260 Aroclor 1268



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With respect to the identification by the laboratories of Aroclor 1254, Aroclor 1260 and Aroclor 1268, independent data validation has confirmed the presence of non-1242 congeners and Aroclor mixtures.

Aroclor 1242 - Sources

From these sediment and fish data sets it is clear that **Aroclor 1242** is a major component of PCB contamination in Fox River sediments. The use of Aroclor 1242 in the manufacture of carbonless copy paper is well documented until March 1971. However it is equally important to keep in mind that Aroclor 1242 was used in many more products and processes. The other commercial applications for **Aroclor 1242** included (WHO IARC Monograph, 1978):

Electrical transformers
Hydraulic fluids
Gas transmission turbine lubricants
Rubber plasticizers
Adhesives
Wax extenders

Given its widespread use, the long-time and heavily industrialized nature of the Fox River watershed, and similarly observed PCB distribution patterns in sediments from other industrialized rivers, it is very likely that even the Aroclor 1242 residues in Fox River sediments are derived from more sources than just those responsible for carbonless copy paper and its recycled paper pulp stream.

Other Aroclors - Sources

These sediment and fish data also indicate the following additional PCB mixtures are present in Fox River sediments:

Aroclor 1254 Aroclor 1260 Aroclor 1268

The potential sources of these Aroclors include manufacturers and/or end users of the following commercial products:

Capacitors (Aroclors 1016, 1221, 1254)
Electrical transformers (Aroclors 1242, 1254, 1260)
Hydraulic fluids (Aroclors 1232, 1242, 1248, 1254, 1260)
Cutting oils (Aroclor 1254)
Vacuum pump fluids (Aroclors 1248, 1254)
Paint plasticizer (Aroclor 1254)
Rubber plasticizers (Aroclors 1221, 1232, 1242, 1248, 1254, 1268)



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Synthetic resin plasticizer (Aroclors 1248, 1254, 1260, 1262, 1268) Adhesives (Aroclors 1221, 1232, 1242, 1248, 1254) Sealants and caulking compounds (Aroclor 1254) Inks (Aroclor 1254) De-dusting agents (Aroclors 1254, 1260) Wax extenders (Aroclors 1242, 1254, 1268) Pesticide extenders (Aroclor 1254)

Again, given the widespread use of PCBs, the long-time and heavily industrialized nature of the Fox River, and similarly observed PCB distribution patterns in sediments from other industrialized rivers, it is very likely that PCB residues in Fox River sediments are derived from multiple sources.

Implications for Remedial Cost Allocation

Additional Aroclors present indicate that carbonless copy paper was <u>not</u> the only source of PCBs to the Fox River sediments. As would be reasonably expected from the commercial and industrial development of the watershed, the presence of other Aroclor mixtures clearly indicates that other PCB sources (e.g. transformer/capacitor dielectric oils, fire resistant hydraulic fluids, etc.) also contributed PCBs to these sediments, are responsible for the PCB contamination of Fox River sediments, and are therefore responsible for a portion of the remediation efforts of the Lower Fox River.

Sediment data where all Aroclors have been appropriately quantitated can be used to assign an allocation of remediation costs based on the mass of PCB contaminants present. Table 1 summarizes sediment data from the ATS 2008 study and the LFR Phase I 2004-2005 work. Adequate data are available from these two studies to calculate the relative abundance of Aroclor 1242 as a percentage of all PCBs in the sediments of OU-1, OU-2 and OU-4. Using average sediment concentrations, the relative abundance of Aroclor 1242 and other Aroclors is calculated to be:

	Aroclor 1242	Other Aroclors
OU-1	73.7 %	26.3 %
OU-2	81.2 %	18.8 %
OU-4	87.0 %	13.0 %

Values for OU-3 and OU-5 are not provided because data meeting the DQOs for this evaluation were not available at this time.



The ecologic and human health toxicities are not uniform among the various Aroclors. Therefore the ecologic and human health significance of sediment concentrations is not directly proportional to the contaminant concentrations. Aroclors with higher chlorine content (e.g. 1254, 1260 and 1268) have higher bioconcentration potential and generally greater toxicity to fish and higher organisms, including man (see Attachment A). These characteristics have been widely investigated since PCB residues were discovered in animal tissue in the late 1960's and early 1970's. The influence of chlorine content on these characteristics has been well understood since the late 1970's (Waid, 1986, Chapters 6 & 7). Kostyniak et. al. evaluated the importance of Aroclor content in understanding PCB body burdens in fish exposed to contaminated sediments from the Fox River, and the associated human toxicity that results from consumption of such fish (Kostyniak, 2005).

Fish tissue data can be used to allocate remediation costs on an ecologic risk-normalized basis to address this. Table 2 summarizes the Aroclor contaminant levels in fish by OU. Using average fish concentrations, the relative abundance of Aroclor 1242 and other Aroclors in fish is calculated to be:

	Aroclor 1242	Other Aroclors
OU-1	43.6 %	56.4 %
OU-2	36.5 %	63.5 %
OU-3	42.5 %	57.5 %
OU-4	51.2 %	48.8 %
OU-5	37.6 %	62.4 %

The difference in relative abundance figures between sediment and fish is primarily attributable to differences in sediment concentration on the one hand, and metabolic and bioconcentration/bioaccumulation factors on the other. The de minimis guidance document referenced at the beginning of this white paper indicates the relative toxicity of contaminants is an appropriate consideration. These fish tissue data support the conclusion that non-1242 PCB contamination is a significant factor in the LFR.

These two sets of relative abundance numbers are shown graphically in Figure 5. They can be used to allocate remediation costs on both a mass basis and a risk basis, as shown in Table 3. Sediment volumes and remediation costs have been provided by Tetra Tech EC, the general contractors for remediation of the Fox River. The Aroclor relative abundance for allocation of



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costs in OU-3 on a mass basis has been assumed to be the same as in OU-2 where sediment data meeting the DQOs are available.

Settling Parties' Background Information and Relevance to LFR PCB Contamination

Relevant observations made by ATS during file reviews of the PRPs have been summarized in fact sheets for each PRP facility, contained in Attachment E. The OSWER Directive #9834.7-1D states: "To determine whether a PRP is eligible for a waste contributor & de minimis settlement, a Region needs to assess the individual PRP's waste contribution relative to the volume of waste at the site. Comparing these two pieces of information allows the Region to determine whether that party's contribution was minor compared to other hazardous substances at the facility. Regions should use available documentary evidence to identify the individual amount of contribution." Further, the guidance states, "It is important to reemphasize the Agency's approach to the toxicity component of the de minimis determination." In both the 1987 and 1989 de minimis guidances the toxicity finding is met when the hazardous substances are not "significantly more toxic and not of significantly greater hazardous effect" than other hazardous substances at the facility." (OSWER Directive #9834.7-1D, page 2)

These de minimis parameters should be demonstrated in order to support the proposed settlement. With regard to such a demonstration, this report clearly and effectively presents information that a focus on the use, recycling, processing, etc. of carbonless copy paper is not the appropriate standard. As discussed above, the potential for multiple other sources for Aroclor 1242, the substantial presence of non-Aroclor 1242 contamination in the LFR sediments to be remediated, and the relatively greater hazard associated with non-1242 PCB contamination, mandates the expansion of the due diligence process to include the use and or discharge of any PCB.

To that end, preliminary file searching of records for historic PCB discharges and/or releases is seriously compromised by the 10 year record retention policy of WDNR and USEPA. Clean Water Act files for relevant periods including the 1970's and 1980's apparently no longer exist. Despite that limitation, ATS' search of local Industrial Pretreatment Program files and other records of historic businesses revealed that the Fox River watershed included foundry operations, metal finishers, oil reclamation operations, and many other industrial facilities likely to have used PCBs in electrical apparatus including transformers and capacitors, as well as other commercial products like hydraulic fluids and forming lubricants, prior to PCBs being banned from commerce in 1979.

The eleven parties included in this proposed de minimis settlement include those likely to have discharged non-Aroclor 1242 PCBs. The data presented in this report show there is a significant contribution of PCBs unrelated to carbonless copy paper. This fact cannot be ignored but instead needs to be more fully examined before parties and critical funding sources are excused from their obligations to participate in the remediation of the LFR sediments.



Conclusions: Assessment of de minimis Claim for Setting PRPs

- Carbonless copy paper was <u>not</u> the only source of PCBs to the Fox River sediments. As would be reasonably expected, the presence of other Aroclor mixtures clearly indicates that other PCB sources (transformer/capacitor dielectric oils, fire resistant hydraulic fluids, etc.) also contributed PCBs to the watershed, and are also responsible for the PCB contamination of Fox River sediments.
- While it is well documented that Aroclor 1242 was used in carbonless copy paper manufacturing along the Lower Fox River prior to 1971, and while Aroclor 1242 is clearly a major component of PCB contamination in Fox River sediments, Aroclor 1242 was used in many more products than just carbonless copy paper. Given its widespread use in commerce, it is very likely that a portion of the Aroclor 1242 residues in Fox River sediments are derived from sources other than carbonless copy paper.
- Much of the older site characterization data is truncated in such a way that sediment samples appear not to contain Aroclors other than 1242 when, in fact, that is not the case.
 When non-truncated data are evaluated, the majority of sediments contaminated with Aroclor 1242 are also contaminated with other Aroclors at non-trivial concentrations.
- The laboratory reports examined in preparation of this report clearly show the presence of significant quantities of Aroclor 1254, 1260 and 1268. These non-Aroclor 1242 PCBs are not derived from Aroclor 1242 "weathering."
- The preponderance of effort in Fox River site characterization has focused on Aroclor 1242 and carbonless copy paper sources. The investigation to date has not been sufficient to identify sources of other Aroclors that constitute from 13.0 to 26.3 percent of PCB contamination in Fox River sediments.
- Aroclors 1254, 1260 and 1268 impart relatively greater adverse ecologic effects due to their higher chlorine content. This is reflected in the Fox River fish data, which indicate the non-1242 Aroclors account for 48.8 to 63.5 percent of the PCB contamination in fish.
- This report demonstrates that there is a significant contribution of PCBs in the Lower Fox River sediments which is unrelated to carbonless copy paper. Adequate due diligence must be completed to account for the responsible parties of the non-1242 PCB contamination. Merely establishing the lack of connection between the de minimis parties and carbonless copy paper is an insufficient basis for advancing a settlement in light of the significant mass and relative toxicity of non-1242 contamination present in the Fox River sediments.



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- With this de minimis settlement of \$1,800,000, the government is proposing to offer these eleven parties settlement share amounting to just 0.12 % of the total settlement basis of \$1.5 billion. As summarized in Table 4, based upon this analysis the portion of this cost attributable to non-1242 PCB is actually between \$208,000,000 and \$752,500,000.
- As summarized in Table 4, given the magnitude of the remediation costs and the relative abundance of PCBs from Aroclors other than 1242 throughout the Fox River, it is not reasonable to conclude that parties responsible for such PCBs qualify for de minimis treatment under CERCLA.



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Tables

Table 1: Aroclor Distribution Summary – Sediments, Fox River, Wisconsin
Table 2: Aroclor Distribution Summary – Fish, Fox River, Wisconsin
Table 3: Remediation Cost Allocation Summary – OU 2 through OU 4
Table 4: Total Cost Allocation Summary

Figures

Figure 1: Aroclor Distribution in Sediments, Fox River OU 1, Wisconsin Figure 2: Aroclor Distribution in Sediments, Fox River OU 2, Wisconsin Figure 3: Aroclor Distribution in Sediments, Fox River Upper OU 4, Wisconsin Figure 4: Aroclor Distribution in Sediments, Fox River Lower OU 4, Wisconsin Figure 5: Average Aroclor Contribution in Sediments and Fish (By Sample)



Table 1:
Aroclor Distribution Summary: Method Calculation Comparison
PCB Aroclors Detected in Sediments
Fox River, Wisconsin

	OU1		Ol	J2	Ol	OU3		OU4		OU5	
Aroclor	Avg. Conc. (ug/kg)	Percent of Total (1)	Avg. Conc. (ug/kg)	Percent of Total ⁽¹⁾	Avg. Conc. (ug/kg)	Percent of Total (1)	Avg. Conc. (ug/kg)	Percent of Total ⁽¹⁾	Avg. Conc. (ug/kg)	Percent of Total (1)	
Average Arc	oclor Contributio	on (by Sample)									
1016	-	-	-	-	-	-	-	-	-	-	
1221	-	-	-	-	-	-	-	-	-	-	
1232	-	-	-	-	-	-	-	-	-	-	
1242	-	73.7	-	81.2	-	-	-	87.0	-	-	
1248	-	-	-	-	-	-	-	-	-	-	
1254	-	ן 23.7	-	16.9 լ	-	-	-	5.6 ๅ	-	-	
1260	-	2.3 26	.3 -	1.1 } 18	3.8 ⁻	-	-	4.0 } 13	3.0 -	-	
1268	-	0.3 ^J	-	0.8	-	-	-	3.4 ^J	-	-	

Concentrations are reported in ug/kg, dry weight.

N/A = Not Reported.

Data Source: Fox River Database (2006-2007)

(1) Calculated from relative abundances for each postive sample within an OU.



Table 2: Aroclor Distribution Summary: Method Calculation Comparison PCB Aroclors Detected in Fish Tissue Fox River, Wisconsin

	O	U1	Ol	OU2 OU3 OU4		OU2 OU3 OU4 OU5			J5	
Aroclor	Avg. Conc. (ug/kg)	Percent of Total ⁽¹⁾	Avg. Conc. (ug/kg)	Percent of Total (1)	Avg. Conc. (ug/kg)	Percent of Total (1)	Avg. Conc. (ug/kg)	Percent of Total ⁽¹⁾	Avg. Conc. (ug/kg)	Percent of Total ⁽¹⁾
Average Ar	oclor Contribution	on (by Sample)								
1016	-	-	-	-	-	-	-	-	-	-
1221	-	-	-	-	-	-	-	-	-	-
1232	-	-	-	-	-	-	-	-	-	-
1242	-	43.6	-	36.5	-	42.5	-	51.2	-	37.6
1248	-	-	-	-	-	-	-	-	-	-
1254	-	44.5 շ	-	43.97	<u>-</u>	40.8 7	-	37.0 7		46.57
1260	-	11.9 56.	4 -	19.6 63.	-	16.7 57.	b _	11.8 48.8	3 <u> </u>	15.9 62.4
1268	-	N/A	-	N/A	-	N/A	-	N/A	-	N/A

Concentrations are reported in ug/kg, dry weight.

N/A = Not Reported.

Data Source: Fox River Database (2006-2007)

(1) Calculated from relative abundances for each postive sample within an OU.



Table 3: **Remediation Cost Allocation Summary** OU2 through OU4 Fox River, Wisconsin

Removal Volume Estimates

			Reillovai void	ille Estillates			
	No	on-TSCA Require	d + 6" Overdredge [cy]				Total
Year	OU 2	OU 3	OU4	Total	TSCA [cy]	Residuals [cy]	[cy]
2009	24,000	76,000	362,000	460,000	10,000		470,000
2010	0	76,000	424,000	500,000	10,000	38,330	548,330
2011	0	0	490,000	490,000	10,000	38,330	538,330
2012	0	0	490,000	490,000	10,000	38,330	538,330
2013	0	0	490,000	490,000	10,000	38,330	538,330
2014	0	0	460,000	460,000		38,330	498,330
2015	0	0	215,000	220,000		38,330	258,330
			Ť	•		-	
Total	24,000	152,000	2,931,000	3,110,000	50,000	229,980	3,389,980

Capping Area sq. ft. acres OU2 OU3 308,383 7,787,195 \$300,000 / acre (Engineered Cap) 179 \$100,000 / acre (Sand Cover) OU4 16,990,737 390

I. Sediment Remo	····		Mass Basis (6	adimant Data)	Cost Alloca	ion Basis	For Normalized /F	ich Ticous Date		
i. Seaiment Kemo	vai	11010	Mass Basis (S			11010	Eco-Normalized (Fish Tissue Data)			
Operational Unit	Removal Cost	A1242 Allocation %	Allocated Costs	Non A1242 Allocation %	Allocated Costs	A1242 Allocation %	Allocated Costs	Non A1242 Allocation %	Allocated Costs	
Non-TSCA Remova		7 11100011011 70	7 modatou oosto	7 1100041011 70	/ iiioodtou oooto	7 111000411011 70	7 modatou odoto	7 1100041011 70	7 modulou ocolo	
OU1	ui .	73.7%		26.3%		43.6%		56.4%		
OU2	\$3.840.000	81.2%	\$3,118,080	18.8%	\$721.920	36.5%	\$1,401,600	63.5%	\$2,438,400	
OU3	\$24,320,000	48.2%	\$11,722,240	51.8%	\$12,597,760	42.5%	\$10,336,000	57.5%	\$13,984,000	
OU4	\$263,790,000	87.0%	\$229,497,300	13.0%	\$34,292,700	51.2%	\$135,060,480	48.8%	\$128,729,520	
OU5		50.0%	V ==0, 101,000	50.0%	***,===,****	37.6%	***************************************	62.4%	¥ ·== ; · == ; ·== ·	
Subtotal	\$ 291,950,000		\$244,337,620		\$47,612,380		\$146,798,080		\$145,151,920	
Residuals Non-TS0	CA									
OU1		73.7%		26.3%		43.6%		56.4%		
OU2		81.2%		18.8%		36.5%		63.5%		
OU3	\$932,186	48.2%	\$449,313	51.8%	\$482,872	42.5%	\$396,179	57.5%	\$536,007	
OU4	\$20,173,846	87.0%	\$17,551,246	13.0%	\$2,622,600	51.2%	\$10,329,009	48.8%	\$9,844,837	
OU5		50.0%		50.0%		37.6%		62.4%		
Subtotal	\$ 21,106,031		\$18,000,559		\$3,105,472		\$10,725,188		\$10,380,843	
TSCA Removal										
OU1		73.7%		26.3%		43.6%		56.4%		
OU2		81.2%		18.8%		36.5%		63.5%		
OU3		48.2%		51.8%		42.5%		57.5%		
OU4	\$10,000,000	87.0%	\$8,700,000	13.0%	\$1,300,000	51.2%	\$5,120,000	48.8%	\$4,880,000	
OU5		50.0%		50.0%		37.6%		62.4%		
Subtotal	\$10,000,000		\$8,700,000		\$1,300,000		\$5,120,000		\$4,880,000	
Total	\$ 323,056,031		\$ 271,038,179		\$ 52,017,852		\$ 162,643,268		\$ 160,412,763	

II. Sediment Proc	essing Area	Mass Basis (Sediment Data)				Eco-Normalized (Fish Tissue Data)			
Operational Unit	Sediment Processing Area Costs	A1242 Allocation %	Allocated Costs	Non A1242 Allocation %	Allocated Costs	A1242 Allocation %	Allocated Costs	Non A1242 Allocation %	Allocated Costs
Sediment Process	sin Area								
OU1		73.7%		26.3%		43.6%		56.4%	
OU2		81.2%		18.8%		36.5%		63.5%	
OU3	\$4,600,000	48.2%	\$2,217,200	51.8%	\$2,382,800	42.5%	\$1,955,000	57.5%	\$2,645,000
OU4	\$95,400,000	87.0%	\$82,998,000	13.0%	\$12,402,000	51.2%	\$48,844,800	48.8%	\$46,555,200
OU5		50.0%		50.0%		37.6%		62.4%	
Total	\$ 100,000,000		\$85,215,200		\$14.784.800		\$50,799,800	·	\$49.200.200

III. Capping			Mass Basis (S	ediment Data)			Eco-Normalized (F	ish Tissue Data	1)
		A1242		Non A1242		A1242		Non A1242	
Operational Unit	Capping Costs	Allocation %	Allocated Costs	Allocation %	Allocated Costs	Allocation %	Allocated Costs	Allocation %	Allocated Costs
Capping									
OU1		73.7%		26.3%		43.6%		56.4%	
OU2	\$2,123,853	81.2%	\$1,724,569	18.8%	\$399,284	36.5%	\$775,206	63.5%	\$1,348,647
OU3	\$53,630,816	48.2%	\$25,850,054	51.8%	\$27,780,763	42.5%	\$22,793,097	57.5%	\$30,837,719
OU4	\$117,016,092	87.0%	\$101,804,000	13.0%	\$15,212,092	51.2%	\$59,912,239	48.8%	\$57,103,853
OU5		50.0%		50.0%		37.6%		62.4%	
Total	\$ 172,770,761	•	\$129,378,622		\$43,392,139		\$83,480,542	•	\$89,290,219
TOTAL	\$ 595.826.793		\$ 485.632.001		\$ 110.194.791		\$ 296.923.610		\$ 298.903.182



Table 4: Total Cost Allocation Summary Fox River, Wisconsin

Mass Basis (Sediment Data) Eco-Normalized (Fish Tissue Data)

Department of Justice	[A1242	Non-A1242	A1242	Non-A1242	
Category & Cost		Allocated Costs	Allocated Costs	Allocated Costs	Allocated Costs	
Past Costs	\$200,000,000	\$172,258,582	\$27,741,418	\$99,667,760	\$100,332,240	
Future Costs	\$700,000,000	\$602,905,037	\$97,094,963	\$348,837,162	\$351,162,838	
Contingency	\$350,000,000	\$301,452,518	\$48,547,482	\$174,418,581	\$175,581,419	
NRD	\$250,000,000	\$215,323,227	\$34,676,773	\$124,584,701	\$125,415,299	

TOTAL \$1,500,000,000 \$1,291,939,365 \$208,060,635 \$747,508,204 \$752,491,796

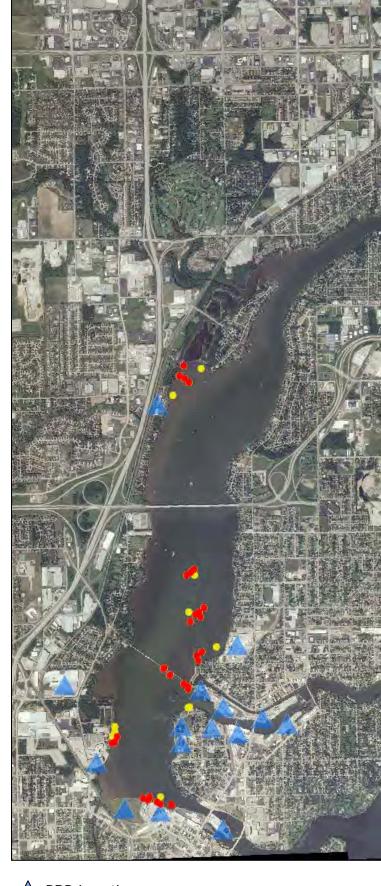


Grand Chute/N △ PRP Location/Name

Figure 1: Aroclor Distribution in Sediments Fox River OU1, Wisconsin







Sampling Location

A PRP Location

Sampling Location

▲ PRP Location

Aroclor 1242 Positive

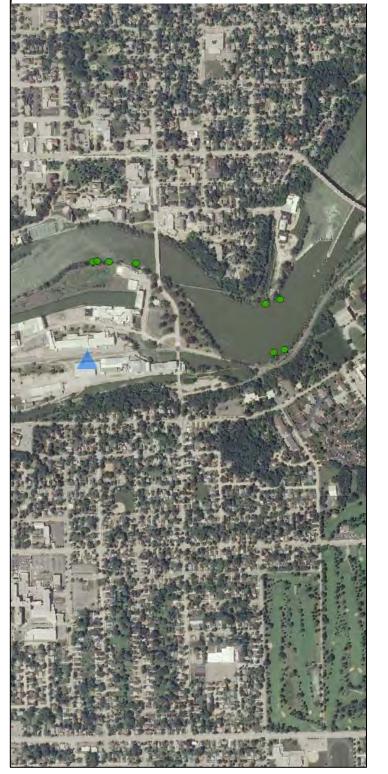
A PRP Location

Aroclor 1242 Positive

Other Aroclor Positives



Figure 2: Aroclor Distribution in Sediments Fox River OU2, Wisconsin







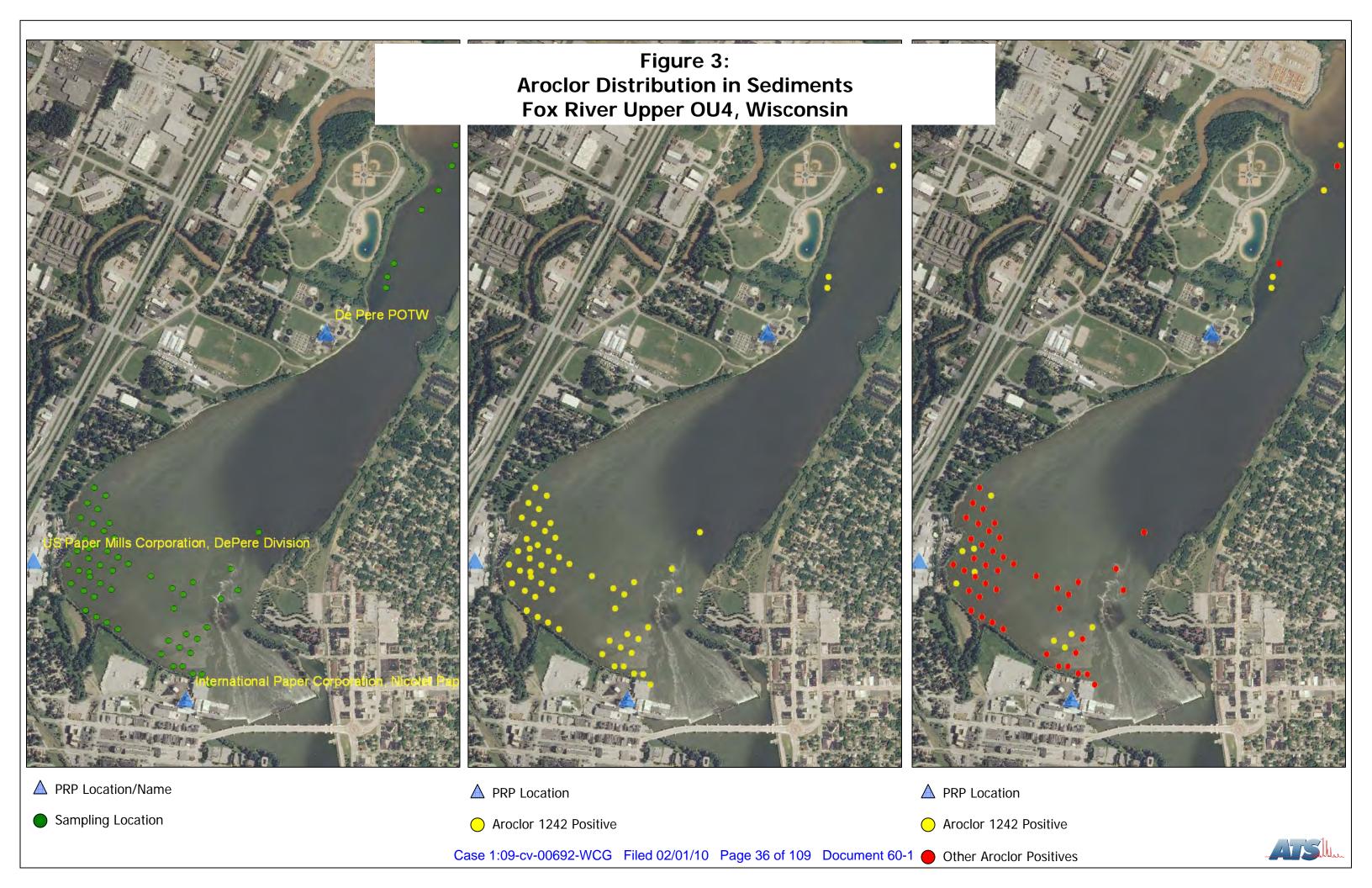
- △ PRP Location/Name
- Sampling Location

- A PRP Location
- Sampling Location

- A PRP Location
- Aroclor 1242 Positive

- A PRP Location
- Aroclor 1242 Positive
- Other Aroclor Positives





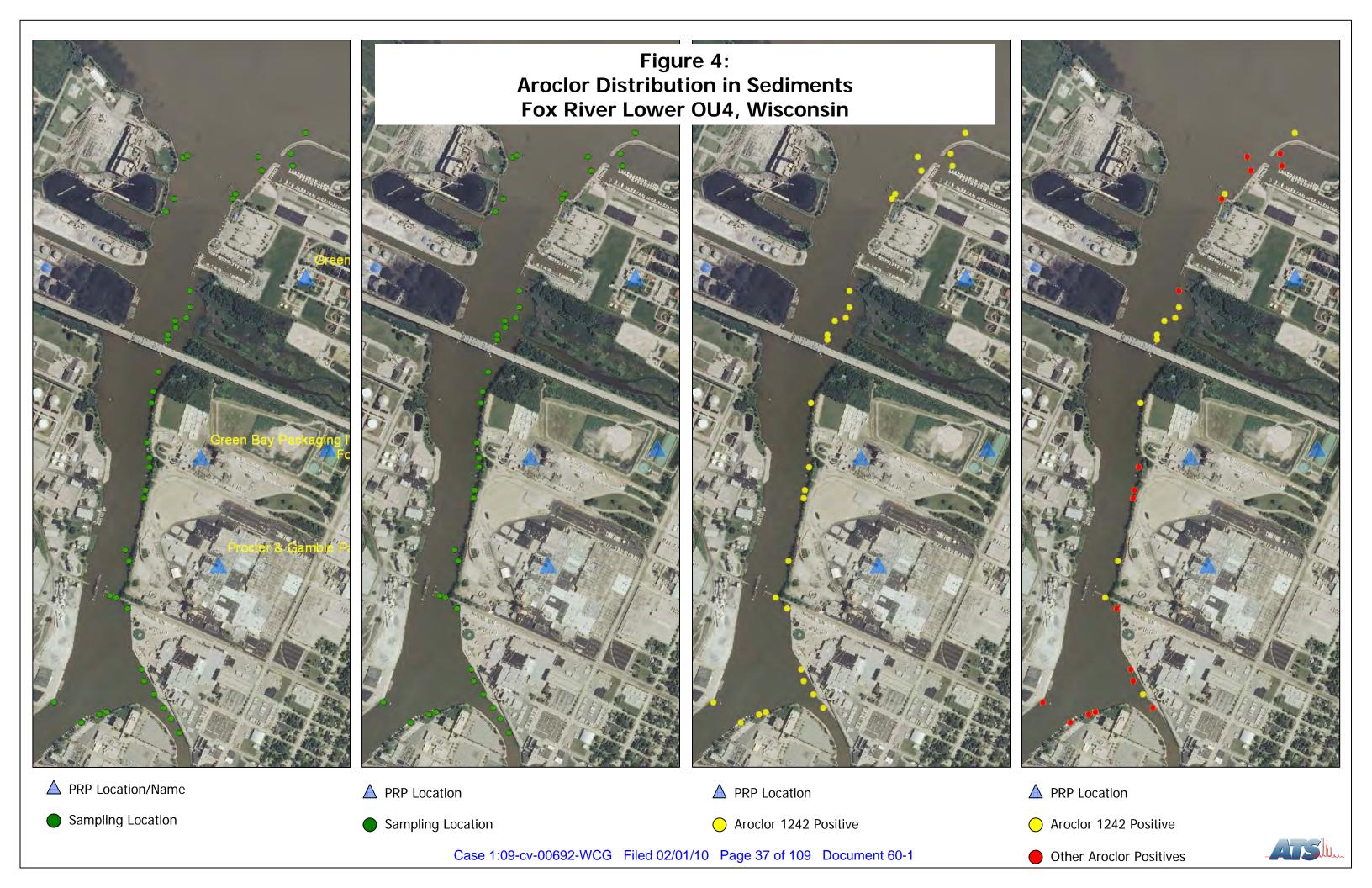
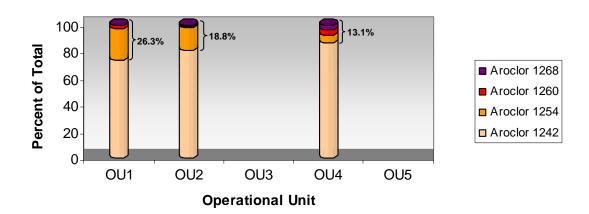
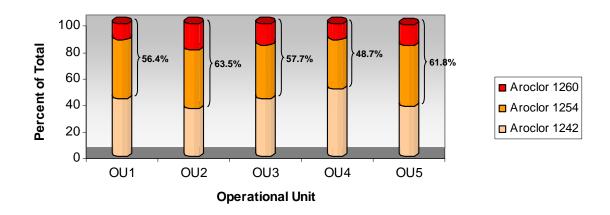


Figure 5:

Average Aroclor Contribution in Sediments (By Sample) Fox River, Wisconsin



Average Aroclor Contribution in Fish Tissue (By Sample) Fox River, Wisconsin





ATTACHMENT A

ATSDR Profile on Polychlorinated Biphenyls

ATSDR Table 4-4: Approximate Weight Percent of PCB Homologs in Some Aroclors

ATSDR Table 5-1: Summary of Former End Uses for Various Aroclors

ATSDR Table 6-3: Bioconcentration Factors (BCFs) and Bioaccumulation Factors (BAFs) for

Select Congeners and Total Polychlorinated Biphenyls in Various Aquatic

Organisms

ATSDR Table 6-6: Field Measured Bioaccumulation Factors for Isomeric Groups of

Polychlorinated Biphenyls



4. CHEMICAL AND PHYSICAL INFORMATION

Table 4-4. Approximate Weight Percent of PCB Homologs in Some Aroclors

Homolog	Aroclor 1016 ^a	Aroclor 1221 ^b	Aroclor 1232°	Aroclor 1242 ^d	Aroclor 1248 ^e
C ₁₂ H ₉ Cl	0.70	60.06	27.55	0.75	0.07
$C_{12}H_8CI_2$	17.53	33.38	26.83	15.04	1.55
$C_{12}H_7CI_3$	54.67	4.22	25.64	44.91	21.27
C ₁₂ H ₆ Cl ₄	22.07	1.15	10.58	20.16	32.77
$C_{12}H_5CI_5$	5.07	1.23	9.39	18.85	42.92
$C_{12}H_4CI_6$	Not detected	Not detected	0.21	0.31	1.64
$C_{12}H_3CI_7$	Not detected	Not detected	0.03	Not detected	0.02
$C_{12}H_2CI_8$	Not detected				
C ₁₂ H ₁ Cl ₉	Not detected				
Average molecular mass	262	206	240	272	300
Empirical Formula	Aroclor 1254 ^f	Aroclor 1254 ^g	Aroclor 1260 ^d	Aroclor 1262 ^h	Aroclor 1268
C ₁₂ H ₉ Cl	0.02	Not detected	0.02	0.02	No data
C ₁₂ H ₈ Cl ₂	0.09	0.24	0.08	0.27	No data
$C_{12}H_7CI_3$	0.39	1.26	0.21	0.98	No data
$C_{12}H_6CI_4$	4.86	10.25	0.35	0.49	No data
$C_{12}H_5CI_5$	71.44	59.12	8.74	3.35	No data
$C_{12}^{\bullet}H_4CI_6$	21.97	26.76	43.35	26.43	No data
$C_{12}H_3CI_7$	1.36	2.66	38.54	48.48	No data
$C_{12}H_2CI_8$	Not detected	0.04	8.27	19.69	No data
C ₁₂ H ₁ Cl ₉	0.04	0.04	0.70	1.65	No data
Average molecular mass	334	334	378	395	453

Source: Frame et al. (1996)

^fLot A4 Aroclor 1254 (Monsanto Lot KI-02-6024) from abnormal late production (1974–1977)

^eLot G4 Aroclor 1254 (GE/118-peak analytical

standard)

^hLot A6 Aroclor 1262

^aLot A2 Aroclor 1016

^bLot A1 Aroclor 1221

^cLot A1.5 Aroclor 1232

^dMean of three Lots

^eLot A3.5 Aroclor 1248

Table 5-1. Summary of Former End Uses for Various Aroclors

					Arock	or			
End use	1016	1221	1232	1242	1248	1254	1260	1262	1268
Capacitors	•	•			-	•			
Transformers				•		•	•		
Heat transfer				•					
Hydraulics/lubricants									
Hydraulic fluids			•	•	•	•	•		
Vacuum pumps			Sym		•	•			
Gas-transmission turbines		•		•					
Plasticizers:									
Rubbers		•	•	•	•	•			•
Synthetic resins					•	•	•	•	•
Carbonless paper				•					
Miscellaneous:									
Adhesives		•	•	•	•	•			
Wax extenders				•		•			•
Dedusting agents						•	•		
Inks,						•			
Cutting oils						•			
Pesticide extenders						•			
Sealants and caulking compounds						•			

Source: IARC 1979

Table 6-3. Bioconcentration Factors (BCFs) and Bioaccumulation Factors (BAFs) for Select Congeners and Total Polychlorinated Biphenyls in Various Aquatic Organisms

PCB	Organism	Laboratory BCF	Field BAF	Location	Reference
PCB 18	Rainbow trout (Oncorhynchus mykiss)	81,000	590,000	Lake Ontario	Oliver and Niimi 1985
PCB 40	Rainbow trout (O. mykiss)	49000	240,000	Lake Ontario	Oliver and Niimi 1985
PCB 52	Rainbow trout (O. mykiss)	200,000	1,900,000	Lake Ontario	Oliver and Niimi 1985
PCB 101	Rainbow trout (O. mykiss)	200,000	8,400,000	Lake Ontario	Oliver and Niimi 1985
PCB 153	Rainbow trout (O. mykiss)	740,000	10,000,000	Lake Ontario	Oliver and Niimi 1985
Total	Perch (Perca fluviatilis)		2,050-7,580	Lake Jarnsjon, Sweden	Bremle et al. 1995
Total	Tilapia (Oreochromis mossambicus)		10,000	Shing Mun River, Hong Kong	Chui et al. 1991
Total	Pumpkinseed (Lepomis gibbonsus)		187,000– 2,079,000	Hudson River, New York	Sloan et al. 1985
Total	Amphipods (Pontoporeia affinis)		718,000	Lake Ontario	Oliver and Niimi 1988
Total	Oligochaetes (Tubifex tubifex and Limnodrilus hoffmeisteri)		164,000	Lake Ontario	Oliver and Niimi 1988
Total	Slimy sculpin (Cottus cognatus)		1,450,000	Lake Ontario	Oliver and Niimi 1988
Total	Alewife (Alosa pseudoharengus)	٠	1,180,000	Lake Ontario	Oliver and Niimi 1988
Total	Rainbow smelt (small) (Osmerus mordax	<i>;</i>)	564,000	Lake Ontario	Oliver and Niimi 1988
Total	Rainbow smelt (large) (O. mordax)		1,272,000	Lake Ontario	Oliver and Niimi 1988
Total	Salmonids		3,910,000	Lake Ontario	Oliver and Niimi 1988

6. POTENTIAL FOR HUMAN EXPOSURE

Table 6-6. Field Measured Bioaccumulation Factors for Isomeric Groups of Polychlorinated Biphenyls

			PCB Gr	oup		
Organism	Tri-	Tetra-	Penta-	Hexa-	Hepta-	Octa-
Amphipods	387,000	667,000	615,000	938,000	2,400,000	1,400,000
Oligochaetes	127,000	180,000	154,000	150,000	259,000	310,000
Slimy sculpin	87,000	633,000	1,490,000	3,125,000	5,185,000	7,500,000
Alewife	173,000	833,000	1,380,000	2,125,000	2,960,000	3,100,000
Rainbow smelt	•					
Small	42,000	367,000	590,000	1,063,000	1,590,000	1,600,000
Large	93,000	933,000	1,380,000	2,375,000	3,148,000	3,300,000
Salmonids	293,000	2,170,000	4,100,000	8,125,000	11,300,000	13,000,000

Source: Oliver and Niimi 1988

ATTACHMENT B

PCB Data Summary Report

ATS Study: 2008



00373 0.0 -	389-1	00373 0.0 -	389-2	00373 0.7 -	889-2	00373 0.0 -	389-3	00373 0.7 -	389-3	0037	U1 '389-4 - 0.4	00373 0.4 -		B65017 0.0 -	700-06	B65017 0.5 -	
A1016	<101	A1016	<409	A1016	<100	A1016	<102	A1016	<101	A1016	<1020	A1016	<101	A1016	<307	A1016	<100
A1221	<101	A1221	<409	A1221	<100	A1221	<102	A1221	<101	A1221	<1020	A1221	<101	A1221	<307	A1221	<100
A1232	<101	A1232	<409	A1232	<100	A1232	<102	A1232	<101	A1232	<1020	A1232	<101	A1232	<307	A1232	<100
A1242	<101	A1242	988	A1242	<100	A1242	155	A1242	<101	A1242	2050	A1242	<101	A1242	894	A1242	32.5
A1248	<101	A1248	<409	A1248	<100	A1248	<102	A1248	<101	A1248	<1020	A1248	<101	A1248	<307	A1248	<100
A1254	<101	A1254	135	A1254	<100	A1254	<102	A1254	<101	A1254	<1020	A1254	<101	A1254	263	A1254	<100
A1260	<101	A1260	<409	A1260	<100	A1260	<102	A1260	<101	A1260	<1020	A1260	<101	A1260	52.3	A1260	<100
A1268	<101	A1268	<409	A1268	<100	A1268	<102	A1268	<101	A1268	<1020	A1268	<101	A1268	<307	A1268	<100
01		01		Ol		01		Ol			U1	01		Ol			U1
B65017 0.0 -		B65017		B65017 0.4 -		B6501		B65017 0.0 -			700-10 - 1.1	B9571 0.0 -		B957100-02 0.0 - 0.5		G464	-
A1016	<524	A1016	<100	A1016	<101	A1016	<102	A1016	<105	A1016	<101	A1016	<100	A1016	<100	A1016	<10300
A1221	<524	A1221	<100	A1221	<101	A1221	<102	A1221	<105	A1221	<101	A1221	<100	A1221	<100	A1221	<10300
A1232	<524	A1232	<100	A1232	<101	A1232	<102	A1232	<105	A1232	<101	A1232	<100	A1232	<100	A1232	<10300
A1242	1630	A1242	<100	A1242	<101	A1242	<102	A1242	<105	A1242	<101	A1242	41.2	A1242	89.0	A1242	19300
A1248	<524	A1248	<100	A1248	<101	A1248	<102	A1248	<105	A1248	<101	A1248	<100	A1248	<100	A1248	<10300
A1254	635	A1254	<100	A1254	<101	A1254	<102	A1254	<105	A1254	<101	A1254	<100	A1254	<100	A1254	2960
A1260	118	A1260	<100	A1260	<101	A1260	<102	A1260	<105	A1260	<101	A1260	<100	A1260	<100	A1260	1330
A1268	<524	A1268	<100	A1268	<101	A1268	<102	A1268	<105	A1268	<101	A1268	<100	A1268	<100	A1268	<10300
Ol	J1	Ol	J1	Ol	J1	01	J1	Ol	J1	0	U1	01	U1	Ol			U1
G464: 0.0 -		G464 0.4 -	-	G4643 0.0 -		G464 0.0 -		G4643 0.2 -			137-05 - 0.3	G464 0.0 -		G6734 0.0 -		G6734 0.0 -	
A1016	<100	A1016	<405	A1016	<100	A1016	<1010	A1016	<101	A1016	<100	A1016	<100	A1016	<100	A1016	<100
A1221	<100	A1221	<405	A1221	<100	A1221	<1010	A1221	<101	A1221	<100	A1221	<100	A1221	<100	A1221	<100
A1232	<100	A1232	<405	A1232	<100	A1232	<1010	A1232	<101	A1232	<100	A1232	<100	A1232	<100	A1232	<100
A1242	<100	A1242	1430	A1242	150	A1242	2560	A1242	236	A1242	57.5	A1242	124	A1242	<100	A1242	<100
A1248	<100	A1248	<405	A1248	<100	A1248	<1010	A1248	<101	A1248	<100	A1248	<100	A1248	<100	A1248	<100
A1254	<100	A1254	190	A1254	<100	A1254	286	A1254	184	A1254	<100	A1254	<100	A1254	<100	A1254	<100
A1260	<100	A1260	78.1	A1260	<100	A1260	<1010	A1260	27.7	A1260	<100	A1260	<100	A1260	<100	A1260	<100
A1268	<100	A1268	<405	A1268	<100	A1268	<1010	A1268	<101	A1268	<100	A1268	<100	A1268	<100	A1268	<100



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6.4 - 10.0	0.0 - 5.0	0.0 - 5.0-DUP	5.0 - 10.0	0.0 - 0.5	0.5 - 6.4	0.0 - 1.1	1.1 - 5.7	5.7 - 9.6
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B4669	91-03	B4669	91-03	B4669	91-03	B466	94-02	B466	94-02	B4669	94-02	B4669	94-02	B4669	B46694-03		94-03
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B4669	94-04	B4669	94-04	B5441	00-01	B5441	00-01	B5441	00-01	B5441	00-02	B5441	00-02	B6893	00-01	B6893	300-01
0.0 -	1.2	1.2 -	3.5	0.0 -	4.0	0.0 - 4.	0-DUP	4.0 -	- 8.2	0.0 -	5.0	5.0 -	10.0	0.0 -	3.9	0.0 - 3.	9-DUP
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OU	4B	OU	4B	OU	4B	OU	4B	OU	4B	OU	4B	OU	14B	OU	14B	OU	14B
R4790	01-06	R4790	01-07	R4790	1-07	R479	01-07	Y4675	58-01	Y467	58-01	Y467	58-02	Y467	58-02	Y467	58-02
5.0 -	10.0	0.0 -	2.8	0.0 - 2.8	3-DUP	2.8 -	7.5	0.0 -	6.6	6.6 -	10.0	0.0	- 1.5	1.5	- 2.3	2.3	- 5.0
A1016	<101	A1016	<100	A1016	<100	A1016	<100	A1016	<101	A1016	<100	A1016	<204	A1016	<102	A1016	<100
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0.0 -	5.0	5.0 -	10.0	0.0 -	0.5	0.5 -	4.0	0.5 - 4.	0-DUP	0.0 -	3.3	3.3	- 6.3	3.3 - 6.	3-DUP	0.0	- 4.6
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OU4	1B	OU4	4B	OU	14B	OU	J4B	OU	4B	OU	4B	OU	14B	OU	14B	OU	4B
Y4676	1-01	Y4676	1-01	Y4676	61-02	Y467	61-02	Y4676	61-03	Y4676	61-03	Y4676	61-04	Y467	61-05	Y4676	61-05
0.0 -	1.5	1.5 -	5.0	0.0 -	- 0.7	0.0 - 0.	7-DUP	0.0 -	0.2	0.2 -	1.5	0.0 -	0.2	0.0	- 3.1	3.1 -	7.0
A1016	<101	A1016	<101	A1016	<101	A1016	<101	A1016	<101	A1016	<101	A1016	<101	A1016	<1010	A1016	<505
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A1232	<101	A1232	<101	A1232	<101	A1232	<101	A1232	<101	A1232	<101	A1232	<101	A1232	<1010	A1232	< 505
A1242	<101	A1242	<101	A1242	<101	A1242	<101	A1242	131	A1242	<101	A1242	240	A1242	3750	A1242	1840
A1248	<101	A1248	<101	A1248	<101	A1248	<101	A1248	<101	A1248	<101	A1248	<101	A1248	<1010	A1248	< 505
A1254	<101	A1254	<101	A1254	<101	A1254	<101	A1254	28.0	A1254	<101	A1254	<101	A1254	467	A1254	376
A1260	<101	A1260	<101	A1260	<101	A1260	<101	A1260	<101	A1260	<101	A1260	<101	A1260	139	A1260	211
A1268	<101	A1268	<101	A1268	<101	A1268	<101	A1268	<101	A1268	<101	A1268	<101	A1268	<1010	A1268	<505
OU4	1B	OU ₄	4B	OU	14B	OU	J4B	OU	4B	OU	4B	OU	14B	OU	4B	OU	4B
Y4676	1-05	Y4676	1-06	Y4676	61-06	Y467	61-06	Y4676	61-06	Y4676	62-01	Y4676	62-01	Y467	62-01	Y4676	62-02
7.0 - 1	12.0	0.0 -	4.0	0.0 - 4.	0-DUP	4.0	- 6.8	6.8 -	10.0	0.0 -	5.0	0.0 - 5.	0-DUP	5.0 -	10.0	0.0 -	2.1
A1016	<102	A1016	<2020	A1016	<2020	A1016	<2040	A1016	<303	A1016	<100	A1016	<101	A1016	<100	A1016	<308
A1221	<102		<2020	A1221	<2020	A1221	<2040	A1221	<303	A1221	<100	A1221	<101	A1221	<100	A1221	<308
A1232	<102	A1232	<2020	A1232	<2020	A1232	<2040	A1232	<303	A1232	<100	A1232	<101	A1232	<100	A1232	<308
A1242	<102	A1242	7390	A1242	5130	A1242	6950	A1242	1090	A1242	90.3	A1242	84.6	A1242	<100	A1242	962
A1248	<102	A1248	<2020	A1248	<2020	A1248	<2040	A1248	<303	A1248	<100	A1248	<101	A1248	<100	A1248	<308
A1254	<102	A1254	<2020	A1254	<2020	A1254	1130	A1254	593	A1254	<100	A1254	<101	A1254	<100	A1254	144
A1260	<102	A1260	<2020	A1260	<2020	A1260	<2040	A1260	162	A1260	<100	A1260	<101	A1260	<100	A1260	<308
A1268	38.2	A1268	<2020	A1268	<2020	A1268	<2040	A1268	<303	A1268	<100	A1268	<101	A1268	<100	A1268	<308



Y4676 0.0 - 2.	62-02	OU Y4676 2.1 -	62-02
A1016	<306	A1016	<100
A1221	<306	A1221	<100
A1232	<306	A1232	<100
A1242	929	A1242	<100
A1248	<306	A1248	<100
A1254	131	A1254	<100
A1260	<306	A1260	<100
A1268	<306	A1268	<100



ATTACHMENT C

PCB Data Summary Report

LFR Phase I Sediment Study: 2004 - 2005

3020 FR-302		3026 FR-302		3027 FR-3027		3027 FR-302		3027 FR-302		3027 FR-302		4001 FR-4001		400° FR-400		4001 FR-400	
1.0 -	1.5	1.5 -	2.0	0.0 -	0.3	0.5 -	1.0	1.0 -	1.5	1.5 -	2.0	0.0 -	0.3	0.5 -	1.0	1.0 -	1.7
A1016	<27	A1016	<27	A1016	<54	A1016	<27	A1016	<27	A1016	<27	A1016	<400	A1016	<1100	A1016	<1400
A1221	<27	A1221	<27	A1221	<54	A1221	<27	A1221	<27	A1221	<27	A1221	<400	A1221	<1100	A1221	<1400
A1232	<27	A1232	<27	A1232	<54	A1232	<27	A1232	<27	A1232	<27	A1232	<400	A1232	<1100	A1232	<1400
A1242	96	A1242	100	A1242	1200	A1242	<27	A1242	<27	A1242	<27	A1242	7400	A1242	23000	A1242	25000
A1248	<27	A1248	<27	A1248	<54	A1248	<27	A1248	<27	A1248	<27	A1248	<400	A1248	<1100	A1248	<1400
A1254	<27	A1254	<27	A1254	230	A1254	<27	A1254	<27	A1254	<27	A1254	1500	A1254	1300	A1254	1800
A1260	33	A1260	31	A1260	63	A1260	<27	A1260	<27	A1260	<27	A1260	570	A1260	<1100	A1260	<1400
A1268	60	A1268	57	A1268	69	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A
400	1-02	4001	-02	4001	-02	4001	-02	4001	-02	4001	-02	4001	-02	400	1-03	4001	-03
FR-400	1-02-SS	FR-400	1-02B	FR-400	1-02C	FR-400	1-02D	FR-4001	I-02EX	FR-400	1-02E	FR-400	1-02F	FR-400	1-03-SS	FR-400	1-03B
0.0	0.3	0.5 -	1.0	1.0 -	1.5	1.5 -	2.0	2.0 -	2.5	2.0 -	2.5	2.5 -	3.0	0.0 -	0.3	0.5 -	1.0
A1016	<130	A1016	<2200	A1016	<1600	A1016	<270	A1016	<27	A1016	<27	A1016	<27	A1016	<400	A1016	<1400
A1221	<130	A1221	<2200	A1221	<1600	A1221	<270	A1221	<27	A1221	<27	A1221	<27	A1221	<400	A1221	<1400
A1232	<130	A1232	<2200	A1232	<1600	A1232	<270	A1232	<27	A1232	<27	A1232	<27	A1232	<400	A1232	<1400
A1242	1700	A1242	54000	A1242	32000	A1242	5700	A1242	<27	A1242	57	A1242	46	A1242	4700	A1242	26000
A1248	<130	A1248	<2200	A1248	<1600	A1248	<270	A1248	<27	A1248	<27	A1248	<27	A1248	<400	A1248	<1400
A1254	1100	A1254	6100	A1254	3700	A1254	920	A1254	<27	A1254	<27	A1254	<27	A1254	3100	A1254	4100
A1260	410	A1260	<2200	A1260	<1600	A1260	420	A1260	<27	A1260	<27	A1260	<27	A1260	1100	A1260	<1400
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A
400	1-03	4001	-03	4001	-03	4001	-03	4001	-04	4001	-04	4001	-04	400	1-04	4001	-07
FR-400	01-03C	FR-400	1-03D	FR-400	1-03E	FR-400	1-03F	FR-4001	-04-SS	FR-400	1-04B	FR-400	1-04BX	FR-400	01-04C	FR-400	1-07F
1.0 -	1.5	1.5 -	2.0	2.0 -	2.5	2.5 -	3.0	0.0 -	0.3	0.5 -	1.0	0.5 -	1.0	1.0 -	1.5	2.5 -	3.0
A1016	<2000	A1016	<400	A1016	<27	A1016	<27	A1016	<840	A1016	<2700	A1016	<2700	A1016	<1600	A1016	<270
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A1254	4100	A1254	1700	A1254	130	A1254	<27	A1254	2400	A1254	4700	A1254	4100	A1254	3200	A1254	1600
A1260	<2000	A1260	640	A1260	91	A1260	<27	A1260	<840	A1260	<2700	A1260	<2700	A1260	<1600	A1260	560
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A



400° FR-400°		400° FR-400		4001 FR-400		40011 FR-400		4001I FR-4001		4001 FR-4001		4001 FR-400			R-01 1R-01E		2-01 2-01-SS
0.0 -	0.3	0.5 -	1.0	1.0 -	1.5	0.5 -	1.0	1.0 -	1.5	1.0 -	1.5	1.5 -	2.0	2.0	- 2.5	0.0	- 0.3
A1016	<190	A1016	<5500	A1016	<54	A1016	<1400	A1016	<4100	A1016	<4100	A1016	<1400	A1016	<540	A1016	<2800
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A1232	<190	A1232	<5500	A1232	<54	A1232	<1400	A1232	<4100	A1232	<4100	A1232	<1400	A1232	<540	A1232	<2800
A1242	5000	A1242	64000	A1242	1200	A1242	23000	A1242	87000	A1242	97000	A1242	38000	A1242	11000	A1242	78000
A1248	<190	A1248	<5500	A1248	<54	A1248	<1400	A1248	<4100	A1248	<4100	A1248	<1400	A1248	<540	A1248	<2800
A1254	790	A1254	<5500	A1254	250	A1254	1700	A1254	<4100	A1254	<4100	A1254	3800	A1254	1200	A1254	12000
A1260	<190	A1260	<5500	A1260	130	A1260	<1400	A1260	<4100	A1260	5200	A1260	2600	A1260	1100	A1260	4300
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A
4002	2-01	4002	2-01	4002	-01	4002	2-01	4002	2-01	4002	2-01	4002	2-02	400	2-02	400	2-02
FR-400)2-01B	FR-400)2-01C	FR-400	2-01D	FR-400	2-01E	FR-400	2-01F	FR-400	2-01G	FR-4002	2-02-SS	FR-400	2-02BZ	FR-400	2-02BX
0.5 -	1.0	1.0 -	1.5	1.5 -	2.0	2.0 -	2.5	2.5 -	3.0	3.0 -	3.5	0.0 -	0.3	0.5	- 1.0	0.5	- 1.0
A1016	<2000	A1016	<27	A1016	<27	A1016	<27	A1016	<27	A1016	<27	A1016	<680	A1016	<22000	A1016	<110000
A1221	<2000	A1221	<27	A1221	<27	A1221	<27	A1221	<27	A1221	<27	A1221	<680	A1221	<22000	A1221	<110000
A1232	<2000	A1232	<27	A1232	<27	A1232	<27	A1232	<27	A1232	<27	A1232	<680	A1232	<22000	A1232	<110000
A1242	67000	A1242	170	A1242	68	A1242	110	A1242	320	A1242	160	A1242	17000	A1242	810000	A1242	2300000
A1248	<2000	A1248	<27	A1248	<27	A1248	<27	A1248	<27	A1248	<27	A1248	<680	A1248	<22000	A1248	<110000
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A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A
4002	2-02	4002	2-02	4002	-02	4002	2-02	4002	2-02	4002	2-02	4002	2-02	400	2-02	400	2-02
FR-400	02-02B	FR-400)2-02C	FR-4002	2-02CZ	FR-400	2-02D	FR-4002	2-02DZ	FR-400	2-02EZ	FR-400)2-02E	FR-400	2-02FZ	FR-40	02-02F
0.5 -	1.0	1.0 -	1.5	1.0 -	1.5	1.5 -	2.0	1.5 -	2.0	2.0 -	2.5	2.0 -	2.5	2.5	- 3.0	2.5	- 3.0
A1016	<250000	A1016	<25000	A1016	<1700	A1016	<84	A1016	<840	A1016	<28	A1016	<190	A1016	<27	A1016	<27
A1221	<250000	A1221	<25000	A1221	<1700	A1221	<84	A1221	<840	A1221	<28	A1221	<190	A1221	<27	A1221	<27
A1232	<250000	A1232	<25000	A1232	<1700	A1232	<84	A1232	<840	A1232	<28	A1232	<190	A1232	<27	A1232	<27
A1242	3000000	A1242	580000	A1242	45000	A1242	2500	A1242	21000	A1242	650	A1242	4600	A1242	69	A1242	90
A1248	<250000	A1248	<25000	A1248	<1700	A1248	<84	A1248	<840	A1248	<28	A1248	<190	A1248	<27	A1248	<27
A1254	<250000	A1254	<25000	A1254	5300	A1254	190	A1254	1900	A1254	<28	A1254	500	A1254	<27	A1254	<27
A1260	<250000	A1260	<25000	A1260	<1700	A1260	190	A1260	1400	A1260	<28	A1260	530	A1260	<27	A1260	<27
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A



4002 FR-4002		4002 FR-400		4002 FR-400		4002 FR-400		4002 FR-400		4002 FR-400		4002 FR-4002			2-04 02-04B	4002 FR-400	
0.0 -	0.3	0.5 -	1.0	1.0 -	1.5	1.5 -	2.0	2.0 -	2.5	2.5 -	3.0	0.0 -	0.3	0.5	- 1.0	1.5 -	2.0
A1016	<550	A1016	<1900	A1016	<410	A1016	<140	A1016	<27	A1016	<27	A1016	<280	A1016	<5500	A1016	<220
A1221	<550	A1221	<1900	A1221	<410	A1221	<140	A1221	<27	A1221	<27	A1221	<280	A1221	<5500	A1221	<220
A1232	<550	A1232	<1900	A1232	<410	A1232	<140	A1232	<27	A1232	<27	A1232	<280	A1232	<5500	A1232	<220
A1242	11000	A1242	55000	A1242	10000	A1242	2200	A1242	710	A1242	80	A1242	6400	A1242	150000	A1242	2300
A1248	<550	A1248	<1900	A1248	<410	A1248	<140	A1248	<27	A1248	<27	A1248	<280	A1248	<5500	A1248	<220
A1254	<550	A1254	<1900	A1254	1700	A1254	740	A1254	55	A1254	<27	A1254	880	A1254	9800	A1254	<220
A1260	1900	A1260	<1900	A1260	1300	A1260	510	A1260	33	A1260	<27	A1260	<280	A1260	<5500	A1260	<220
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A
4002	2-04	4002	2-04	4002	-04	4002	-04	4002	-04	4002	2-05	4002	2-05	400	2-05	4002	2-09
FR-400)2-04E	FR-400	2-04F	FR-400	2-04G	FR-400	2-04H	FR-4002	2-04HX	FR-4002	2-05-SS	FR-400	2-05D	FR-400	02-05E	FR-400	2-09B
2.0 -	2.5	2.5 -	3.0	3.0 -	3.5	3.5 -	4.0	3.5 -	4.0	0.0 -	0.3	1.5 -	2.0	2.0	- 2.5	0.5 -	1.0
A1016	<82	A1016	<55	A1016	<27	A1016	<27	A1016	<27	A1016	<270	A1016	<410	A1016	<27	A1016	<820
A1221	<82	A1221	<55	A1221	<27	A1221	<27	A1221	<27	A1221	<270	A1221	<410	A1221	<27	A1221	<820
A1232	<82	A1232	<55	A1232	<27	A1232	<27	A1232	<27	A1232	<270	A1232	<410	A1232	<27	A1232	<820
A1242	930	A1242	1700	A1242	320	A1242	220	A1242	110	A1242	7600	A1242	6900	A1242	510	A1242	15000
A1248	<82	A1248	<55	A1248	<27	A1248	<27	A1248	<27	A1248	<270	A1248	<410	A1248	<27	A1248	<820
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4002	2-09	4002	2-09	4002	-09	4002	-09	4002	-09	4002	2-09	4002	2-09	400	2-09	40021	R-22
FR-400)2-09D	FR-400)2-09F	FR-400	2-09G	FR-400	2-09H	FR-4002	2-09JX	FR-400)2-09J	FR-400	2-09K	FR-40	02-09L	FR-4002F	R-22-SS
1.5 -	2.0	2.5 -	3.0	3.0 -	3.5	3.5 -	4.0	4.0 -	4.5	4.0 -	4.5	4.5 -	5.0	5.0	- 5.5	0.0 -	0.3
A1016	<5500	A1016	<5500	A1016	<2800	A1016	<2100	A1016	<2100	A1016	<2100	A1016	<1900	A1016	<1900	A1016	<270
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A1232	<5500	A1232	<5500	A1232	<2800	A1232	<2100	A1232	<2100	A1232	<2100	A1232	<1900	A1232	<1900	A1232	<270
A1242	130000	A1242	140000	A1242	45000	A1242	34000	A1242	40000	A1242	38000	A1242	41000	A1242	38000	A1242	3500
A1248	<5500	A1248	<5500	A1248	<2800	A1248	<2100	A1248	<2100	A1248	<2100	A1248	<1900	A1248	<1900	A1248	<270
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A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A



4002 FR-4002		4002 FR-400	R-22 2R-22P	4002 FR-4002		4003 FR-4003		4003 FR-400		4003 FR-400		4003 FR-400		4003- FR-4003		4003- FR-4003	
6.0 -	6.5	6.5 -	- 7.0	7.0 -	7.5	0.0 -	0.3	0.5 -	1.0	1.5 -	2.0	2.5 -	3.0	3.0 - 3	3.5	3.5 - 4	4.0
A1016	<2700	A1016	<4100	A1016	<1600	A1016	<1400	A1016	<2500	A1016	<27	A1016	<27	A1016	<27	A1016	<27
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A1248	<2700	A1248	<4100	A1248	<1600	A1248	<1400	A1248	<2500	A1248	<27	A1248	<27	A1248	<27	A1248	<27
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4003	3-01	4003	3-01	4003	3-02	4003	3-02	4003	3-02	4003	3-02	4003	-02	4003-	02	4003-	-02
FR-400	03-01J	FR-400	03-01K	FR-4003	3-02-SS	FR-400	3-02B	FR-400	3-02D	FR-400	3-02F	FR-400	3-02G	FR-4003	3-02H	FR-4003	3-02J
4.0 -	4.5	4.5 -	- 5.0	0.0 -	0.3	0.5 -	1.0	1.5 -	2.0	2.5 -	3.0	3.0 -	3.5	3.5 - 4	4.0	4.0 - 4	4.5
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A1260	<27	A1260	<27	A1260	<270	A1260	<2700	A1260	1300	A1260	130	A1260	<82	A1260	<27	A1260	<81
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A
4003	3-02	4003	3-02	4003	3-03	4003	3-03	4003	3-03	4003	3-03	4003	-03	4003-	03	4003-	-03
FR-400)3-02K	FR-400	03-02L	FR-4003	3-03-SS	FR-400	3-03B	FR-4003	3-03BX	FR-400	3-03D	FR-400	3-03F	FR-4003	3-03G	FR-4003	3-03H
4.5 -	5.0	5.0 -	- 5.5	0.0 -	0.3	0.5 -	1.0	0.5 -	1.0	1.5 -	2.0	2.5 -	3.0	3.0 - 3	3.5	3.5 - 4	4.0
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A1232	<27	A1232	<27	A1232	<140	A1232	<820	A1232	<820	A1232	<4100	A1232	<270	A1232	<110	A1232	<28
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A1248	<27	A1248	<27	A1248	<140	A1248	<820	A1248	<820	A1248	<4100	A1248	<270	A1248	<110	A1248	<28
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A1260	<27	A1260	<27	A1260	170	A1260	<820	A1260	<820	A1260	<4100	A1260	450	A1260	210	A1260	41
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A



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4.0 -	4.5	4.5 -	5.0	5.0 -	5.5	0.0 -	0.3	0.5 -	1.0	1.5 -	2.0	2.5 -	3.0	3.0 -	3.5	3.5 - 4	4.0
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A1254	<27	A1254	<27	A1254	<27	A1254	650	A1254	2000	A1254	4800	A1254	2200	A1254	820	A1254	170
A1260	<27	A1260	<27	A1260	<27	A1260	<220	A1260	< 550	A1260	<2200	A1260	1300	A1260	780	A1260	230
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	330
4003	-04	4003-	-04	4003	-04	4003	-05	4003	3-05	4003	3-05	4003	3-05	4003	-05	4003-	-05
FR-400	3-04J	FR-4003	3-04K	FR-400	3-04L	FR-4003	-05-SS	FR-4003	3-05BX	FR-400	3-05B	FR-400	03-05D	FR-400	3-05E	FR-4003	3-05F
4.0 -	4.5	4.5 - 9	5.0	5.0 -	5.5	0.0 -	0.3	0.5 -	1.0	0.5 -	1.0	1.5 -	2.0	2.0 -	2.5	2.5 - 3	3.0
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A1248	<27	A1248	<27	A1248	<27	A1248	<420	A1248	<1100	A1248	<1600	A1248	<27	A1248	<27	A1248	<27
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A1268	100	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	240	A1268	65
4003	-05	4003-	-05	4003	-06	4003	-06	4003	3-06	4003	3-06	4003	3-06	4003	-06	4003-	-07
FR-4003	3-05G	FR-4003	3-05H	FR-4003	-06-SS	FR-400	3-06D	FR-400	3-06E	FR-400	3-06F	FR-400	3-06G	FR-400	3-06H	FR-4003-	-07-SS
3.0 -	3.5	3.5 -	4.0	0.0 -	0.3	1.5 -	2.0	2.0 -	2.5	2.5 -	3.0	3.0 -	3.5	3.5 -	4.0	0.0 - 0	0.3
A1016	<27	A1016	<27	A1016	<570	A1016	<27	A1016	<27	A1016	<27	A1016	<27	A1016	<27	A1016	<280
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A1248	<27	A1248	<27	A1248	< 570	A1248	<27	A1248	<27	A1248	<27	A1248	<27	A1248	<27	A1248	<280
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0.5 -	1.0	1.0 -	1.5	0.0 -	0.3	0.0 -	0.3	0.0 -	0.3	0.5 -	1.0	1.0 -	1.5	0.0 -	0.3	0.5 -	1.0
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4004	-01	4004	-01	4004	1-01	4004	1-01	4004	I-01	4004	l-02	4004	1-02	4004	-02	4004	-02
FR-400	4-01C	FR-400	4-01D	FR-400	04-01E	FR-400)4-01F	FR-400	4-01G	FR-4004	1-02-SS	FR-400	04-02B	FR-400	4-02D	FR-4004	4-02F
1.0 -	1.5	1.5 -	2.0	2.0 -	2.5	2.5 -	3.0	3.0 -	3.5	0.0 -	0.3	0.5 -	1.0	1.5 -	2.0	2.5 - 3	3.0
A1016	<540	A1016	<680	A1016	<2700	A1016	<4100	A1016	<1600	A1016	<270	A1016	<1400	A1016	<110	A1016	<27
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A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A
4004	-02	4004	-02	4004	R-12	4004	R-12	4006	R-12	4006	R-12	4006	R-12	4006F	R-12	4006R	R-12
FR-400	4-02G	FR-400	4-02H	FR-4004	4R-12B	FR-400	4R-12D	FR-4006	R-12-SS	FR-400	6R-12L	FR-4006	6R-12M	FR-4006	R-12NX	FR-4006	R-12N
3.0 -	3.5	3.5 -	4.0	0.5 -	1.0	1.5 -	2.0	0.0 -	0.3	5.0 -	5.5	5.5 -	6.0	6.0 -	6.5	6.0 - (6.5
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A1260	<27	A1260	<27	A1260	<190	A1260	<270	A1260	140	A1260	<1400	A1260	650	A1260	880	A1260	930
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A



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6.5 -	7.0	7.0 -	7.5	7.5 -	8.0	8.0 -	8.5	8.5 - 9	9.0	0.5 -	1.0	1.0 -	1.5	1.5 -	2.0	2.0 -	2.5
A1016	<820	A1016	<270	A1016	<140	A1016	<140	A1016	<27	A1016	<540	A1016	<2200	A1016	<1400	A1016	<1600
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4038	3-22	4038	-22	4039	-21	4039	-21	4039-	21	4039	-21	4039	9-21	4039	9-21	4039	9-21
FR-403	38-22F	FR-4038	3-22G	FR-4039	-21-SS	FR-403	9-21B	FR-4039)-21C	FR-403	9-21D	FR-403	39-21E	FR-403	39-21F	FR-403	9-21G
2.5 -	3.0	3.0 -	3.5	0.0 -	0.3	0.5 -	1.0	1.0 - 1	1.5	1.5 -	2.0	2.0 -	2.5	2.5 -	3.0	3.0 -	3.5
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4201	1-01	4201	-01	4201	-01	4201	-01	4201-	01	4201	-01	420	1-01	420	1-01	4201	1-01
FR-4201	I-01-SS	FR-420	1-01B	FR-420	1-01C	FR-420	1-01D	FR-4201	-01E	FR-420	1-01F	FR-420	1-01GX	FR-420)1-01G	FR-420)1-01H
0.0 -	0.3	0.5 -	1.0	1.0 -	1.5	1.5 -	2.0	2.0 - 2	2.5	2.5 -	3.0	3.0 -	3.5	3.0 -	3.5	3.5 -	4.0
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A1254	<54	A1254	<27	A1254	<27	A1254	<27	A1254	<27	A1254	<27	A1254	<27	A1254	<27	A1254	<27
A1260	<54	A1260	<27	A1260	<27	A1260	<27	A1260	<27	A1260	<27	A1260	<27	A1260	<27	A1260	<27
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4201 FR-420		4201- FR-4201		420° FR-420°			1-02 01-02B	4201 FR-420		4201 FR-420		4201 FR-420		4201 FR-420		4201 FR-420	
4.0 -	4.5	4.5 - 5	5.0	0.0 -	0.3	0.5	- 1.0	1.0 -	1.5	1.5 -	2.0	2.0 -	2.5	2.5 -	3.0	3.0 -	3.5
A1016	<27	A1016	<27	A1016	<11000	A1016	<6900	A1016	<270	A1016	<54	A1016	<27	A1016	<27	A1016	<27
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A1248	<27	A1248	<27	A1248	<11000	A1248	<6900	A1248	<270	A1248	<54	A1248	<27	A1248	<27	A1248	<27
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A1260	<27	A1260	<27	A1260	<11000	A1260	<6900	A1260	710	A1260	89	A1260	<27	A1260	<27	A1260	<27
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4201	-02	4201-	02	420	1-02	420	1-03	4201	1-03	4201	1-03	4201	-03	4201	-03	4201	-03
FR-420	1-02H	FR-420′	1-02J	FR-420	01-02K	FR-420	1-03-SS	FR-420	1-03BX	FR-420)1-03B	FR-420	1-03C	FR-420	1-03D	FR-420	1-03E
3.5 -	4.0	4.0 - 4	4.5	4.5 -	5.0	0.0	- 0.3	0.5 -	1.0	0.5 -	1.0	1.0 -	1.5	1.5 -	2.0	2.0 -	2.5
A1016	<27	A1016	<27	A1016	<27	A1016	<5400	A1016	<5500	A1016	<5500	A1016	<550	A1016	<82	A1016	<27
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A1242	<27	A1242	<27	A1242	140	A1242	110000	A1242	150000	A1242	140000	A1242	12000	A1242	2100	A1242	55
A1248	<27	A1248	<27	A1248	<27	A1248	<5400	A1248	< 5500	A1248	<5500	A1248	< 550	A1248	<82	A1248	<27
A1254	<27	A1254	<27	A1254	<27	A1254	<5400	A1254	<5500	A1254	<5500	A1254	1400	A1254	160	A1254	<27
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4201	-03	4201-	03	420	1-03	420	1-03	4201	1-03	4201	1-04	4201	-04	4201	-04	4201	-04
FR-420	1-03F	FR-4201	-03G	FR-420)1-03H	FR-42	01-03J	FR-420)1-03K	FR-4201	I-04-SS	FR-420	1-04C	FR-420	1-04E	FR-420	1-04G
2.5 -	3.0	3.0 - 3	3.5	3.5 -	4.0	4.0	- 4.5	4.5 -	5.0	0.0 -	0.3	1.0 -	1.5	2.0 -	2.5	3.0 -	3.5
A1016	<27	A1016	<27	A1016	<27	A1016	<27	A1016	<27	A1016	<270	A1016	<540	A1016	<1400	A1016	<5500
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A1254	<27	A1254	<27	A1254	<27	A1254	<27	A1254	<27	A1254	<270	A1254	<540	A1254	<1400	A1254	<5500
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4201 FR-420		4201 FR-420		4201 FR-420		4201 FR-420		4201 FR-420		4201 FR-420		4201 FR-420		4201 FR-420		4201 FR-420	-
4.0 -	4.5	5.0 -	5.5	5.5 -	6.0	6.0 -	6.5	6.5 -	7.0	7.0 -	7.5	7.5 -	8.0	8.0 -	8.5	8.5 -	9.0
A1016	<2200	A1016	<1600	A1016	<1600	A1016	<1100	A1016	<550	A1016	<410	A1016	<220	A1016	<160	A1016	<110
A1221	<2200	A1221	<1600	A1221	<1600	A1221	<1100	A1221	< 550	A1221	<410	A1221	<220	A1221	<160	A1221	<110
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A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	1400	A1268	410	A1268	590	A1268	340
4201	-04	4201	-05	4201	-05	4201	1-05	4201	-06	4201	-06	4201	-06	4201	-06	4201	-06
FR-420	1-04U	FR-4201	-05-SS	FR-420	1-05C	FR-420)1-05E	FR-420	1-06M	FR-420	1-06N	FR-420	1-06P	FR-420	1-06Q	FR-420	1-06R
9.0 -	9.5	0.0 -	0.3	1.0 -	1.5	2.0 -	2.5	5.5 -	6.0	6.0 -	6.5	6.5 -	7.0	7.0 -	7.5	7.5 -	8.0
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A1248	<110	A1248	<410	A1248	<820	A1248	<5500	A1248	< 550	A1248	< 550	A1248	<410	A1248	< 550	A1248	< 550
A1254	<110	A1254	<410	A1254	<820	A1254	<5500	A1254	<550	A1254	<550	A1254	<410	A1254	<550	A1254	<550
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A1268	460	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A
4201	-06	4201	-06	4201	-06	4201	1-06	4202	-01	4202	-01	4202	-01	4202	-01	4202	2-01
FR-420	1-06S	FR-420	1-06T	FR-420	1-06U	FR-420)1-06V	FR-4202	-01-SS	FR-420	2-01B	FR-420	2-01C	FR-420	2-01D	FR-420	2-01E
8.0 -	8.5	8.5 -	9.0	9.0 -	9.5	9.5 -	10.0	0.0 -	0.3	0.5 -	1.0	1.0 -	1.5	1.5 -	2.0	2.0 -	2.5
A1016	<820	A1016	<820	A1016	<830	A1016	<1100	A1016	<2700	A1016	<280	A1016	<27	A1016	<27	A1016	<27
A1221	<820	A1221	<820	A1221	<830	A1221	<1100	A1221	<2700	A1221	<280	A1221	<27	A1221	<27	A1221	<27
A1232	<820	A1232	<820	A1232	<830	A1232	<1100	A1232	<2700	A1232	<280	A1232	<27	A1232	<27	A1232	<27
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A1254	<820	A1254	<820	A1254	<830	A1254	<1100	A1254	<2700	A1254	<280	A1254	<27	A1254	<27	A1254	<27
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A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A



4202 FR-4202		4202 FR-4202	-	4202- FR-4202		4202- FR-4202	-	4202 FR-4202		420 FR-420	2-02 02-02B	4202 FR-420		4202 FR-420		4202 FR-420	2-02E 2-02E 2-5 <54 <54 <54 1600 <54 <54 <54 N/A -03 2-03D 2-03 <140 <140 3200 <140 330 410 420 -04 2-04B
3.0 -	3.5	3.5 -	4.0	4.0 - 4.5		4.5 - 9	5.0	0.0 -	0.3	0.5	- 1.0	1.0 -	1.5	1.5 -	2.0	2.0 -	2.5
A1016	<27	A1016	<27	A1016	<27	A1016	<27	A1016	<6800	A1016	<8300	A1016	<830	A1016	<270	A1016	<54
A1221	<27	A1221	<27	A1221	<27	A1221	<27	A1221	<6800	A1221	<8300	A1221	<830	A1221	<270	A1221	<54
A1232	<27	A1232	<27	A1232	<27	A1232	<27	A1232	<6800	A1232	<8300	A1232	<830	A1232	<270	A1232	<54
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A1248	<27	A1248	<27	A1248	<27	A1248	<27	A1248	<6800	A1248	<8300	A1248	<830	A1248	<270	A1248	<54
A1254	<27	A1254	<27	A1254	<27	A1254	<27	A1254	<6800	A1254	<8300	A1254	1200	A1254	<270	A1254	<54
A1260	<27	A1260	<27	A1260	<27	A1260	<27	A1260	14000	A1260	11000	A1260	<830	A1260	<270	A1260	<54
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4202	-02	4202-02		4202-02		4202-02		4202-02		4202-03		420	2-03	4202	2-03	4202	2-03
FR-4202-02F		FR-4202-02G		FR-4202-02H		FR-4202	2-02J	FR-420	2-02K	FR-420	2-03-SS	FR-420	02-03B	FR-420	2-03C	FR-420	2-03D
2.5 -	3.0	3.0 - 3.5		3.5 - 4.0		4.0 - 4	1.5	4.5 -	5.0	0.0	- 0.3	0.5 -	1.0	1.0 -	1.5	1.5 -	2.0
A1016	<81	A1016	<81	A1016	<27	A1016	<27	A1016	<27	A1016	<1400	A1016	<2700	A1016	<270	A1016	<140
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A1260	<81	A1260	<81	A1260	<27	A1260	<27	A1260	<27	A1260	<1400	A1260	<2700	A1260	540	A1260	410
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	650	A1268	420
4202	-03	4202·	-03	4202-	-03	4202-03		4202-03		4202-03		4202-03		4202-04		4202-04	
FR-420	2-03E	FR-420	2-03F	FR-4202	2-03G	FR-4202	-03HX	FR-4202-03H		FR-4202-03J		FR-4202-03K		FR-4202-04-SS		FR-420	2-04B
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A1016	<54	A1016	<27	A1016	<27	A1016	<27	A1016	<27	A1016	<27	A1016	<27	A1016	<540	A1016	<1900
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A1232	<54	A1232	<27	A1232	<27	A1232	<27	A1232	<27	A1232	<27	A1232	<27	A1232	<540	A1232	<1900
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A1268	570	A1268	62	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A



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A1016	<1400	A1016	<160	A1016	<54	A1016	<27	A1016	<27	A1016	<27	A1016	<27	A1016	<27	A1016	<27		
A1221	<1400	A1221	<160	A1221	<54	A1221	<27	A1221	<27	A1221	<27	A1221	<27	A1221	<27	A1221	<27		
A1232	<1400	A1232	<160	A1232	<54	A1232	<27	A1232	<27	A1232	<27	A1232	<27	A1232	<27	A1232	<27		
A1242	27000	A1242	1600	A1242	580	A1242	700	A1242	350	A1242	380	A1242	140	A1242	<27	A1242	<27		
A1248	<1400	A1248	<160	A1248	<54	A1248	<27	A1248	<27	A1248	<27	A1248	<27	A1248	<27	A1248	<27		
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4202-05 4202-05		-05	4202-05		4202-05		4202-05		4202-05		4202	-05	420	2-05	4202	2-05			
FR-4202-05-SS		FR-4202-05C		FR-4202-05E		FR-420	2-05G	FR-420	2-05J	FR-420)2-05L	FR-420	2-05M	FR-420	02-05N	FR-420	02-05P		
0.0 -	0.3	1.0 - 1.5		2.0 - 2.5		3.0 -	3.5	4.0 -	4.5	5.0 -	5.5	5.5 -	6.0	6.0 -	6.5	6.5 -	7.0		
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A1242	22000	A1242	37000	A1242	8600	A1242	1000	A1242	770	A1242	<140	A1242	<140	A1242	<130	A1242	<27		
A1248	<810	A1248	<1400	A1248	<540	A1248	<190	A1248	<160	A1248	<140	A1248	<140	A1248	<130	A1248	<27		
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A1268	N/A	A1268	N/A	A1268	N/A	A1268	630	A1268	380	A1268	320	A1268	400	A1268	240	A1268	380		
4202	2-08	4202	-08	4203	-01	4203-01 4203-01			4203-01		4203-01		4203-01		4203-01				
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3.0 -	3.5	4.0 -	4.4	0.0 -	0.3	0.0 -	0.3	0.0 - 0.3		0.5 - 1.0		1.0 - 1.5		1.5 - 2.0		2.0 -	2.5		
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ATTACHMENT D

PCB Data Summary Report

Fox River Fish Monitoring Data: 2006 – 2007

LWB-06-		LW-06-W		LWB-06-		LWB-06-		LWB-06-		LWB-06-		LWB-06-		LWB-06-		LWB-07-	
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A1248	<19	A1248	<19	A1248	<19	A1248	<19	A1248	<19	A1248	75	A1248	<19	A1248	<19	A1248	<19
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LV	V	LV	V	LV	V	LV	V	LV	V	LV	V	L\	V	LV	V	L\	N
LWB-07-	SB-015	LWB-07-	SB-013	LWB-07-	SB-012	LWB-07-	SB-011	LWB-06-	GS-C4	LWB-07-	SB-009	LW-06-V	VA-016	LWB-07-	SB-007	LWB-07-	SB-006
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LW-06-V	VA-010	LW-06-0	C-001	LWB-07-	SB-014	OU1-06	-CA-C5	OU1-06-S	B-019A	OU1-06-	SB-020	OU1-06-	SB-021	OU1-06-	SB-022	OU1-06-\	VA-001
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A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A
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OU1-06-\	WA-002	OU1-06-\	VA-003	OU1-06-\	WA-004	OU1-06-	WA-005	OU1-06-V	VA-006	OU1-06-	SB-016	OU1-06-\	WA-008	OU1-06-V	VA-009	OU1-06-\	VA-011
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A1260	<19	A1260	19	A1260	<15	A1260	<21	A1260	<12	A1260	15	A1260	37	A1260	17	A1260	<16
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A



OU1-06-	U1 WA-014	OU1-06-V		OU1-06-\		OU1-06-		OU1-06-V		OU1R-06		OU1R-06		OU1-06-V		OU1-06-0	
0.0	- 0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0
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A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A
01	U1	OU	1	OL	J1	Ol	J1	OU	1	OL	J1	OL	J1	OU	11	OU	11
OU1-06	-CA-C4	OU1-06-\	VA-012	OU1-06-	SB-015	OU1-06	-CA-C3	OU1-06-	CA-C2	OU1-06-	-CA-C1	OU1-06-	CC-001	OU1-06-	DR-C1	OU1-06-	DR-C2
0.0	- 0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0
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A1260	320	A1260	21	A1260	50	A1260	400	A1260	180	A1260	42	A1260	27	A1260	59	A1260	89
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01	U1	OU	1	OL	J1	Ol	J1	OU	1	OL	J1	OL	J1	OU	11	OU	11
OU1-06	-DR-C3	OU1-06-	DR-C4	OU1-06-	SB-007	OU1-06-	SB-012	OU1-06-9	SB-014	OU1-06-	DR-C5	OU1-06-	SB-009	OU1-06-	SB-008	OU1-06-9	SB-010
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OU1-06-		OU1-06-		OU1-06-		OU1-06-		OU1-06-		OU2A-06-		OU2A-06		OU2A-06-		OU2A-06	
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A1248	<19	A1248	220	A1248	<19	A1248	<12	A1248	<12	A1248	<12	A1248	<19	A1248	<19	A1248	<19
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A1260	<19	A1260	140	A1260	86	A1260	40	A1260	36	A1260	66	A1260	35	A1260	64	A1260	56
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OU	2A	OU	2A	OU	2A	OU	2A	OU2	2A	OU	2A	OU	2A	OU	2A	OU2	2A
OU2A-06	-SB-006	OU2A-06	-SB-010	OU2A-06-	-WA-005	OU2A-06	-SB-005	OU2A-06-	WA-010	OU2A-06-	-SB-019	OU2A-06	-SB-020	OU2A-06-	WA-001	OU2A-06-	WA-002
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OU	2A	OU	2A	OU	2A	OU	2A	OU2	2A	OU	2A	OU	2A	OU	2A	OU2	2A
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A1260	<19	A1260	45	A1260	<19	A1260	<19	A1260	43	A1260	<19	A1260	30	A1260	28	A1260	27
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OU	2B	OU	2B	OU	2B	OU	2B	OU2	2B	OU	2B	OU	2B	OU	2B	OU:	2B
OU2B-06	-WA-013	OU2B-06-	WA-004	OU2BR-0	6-GS-C5	OU2B-06-	WA-009	OU2B-06-	WA-008	OU2B-06-	WA-007	OU2B-06-	-WA-006	OU2B-06-	-WA-005	OU2B-06-	WA-014
0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0
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A1242	<76	A1242	55	A1242	91	A1242	26	A1242	51	A1242	55	A1242	41	A1242	48	A1242	44
A1248	<76	A1248	<19	A1248	<19	A1248	<19	A1248	<19	A1248	<19	A1248	<19	A1248	<38	A1248	<19
A1254	<76	A1254	81	A1254	40	A1254	82	A1254	56	A1254	57	A1254	53	A1254	69	A1254	57
A1260	<76	A1260	28	A1260	<19	A1260	39	A1260	20	A1260	19	A1260	<19	A1260	<38	A1260	24
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A
OU	2B	OU	2B	OU	2B	OU	2B	OU2	2B	OU	2B	OU	2B	OU	2B	OU:	2B
OU2B-06	-CC-002	OU2B-06-	-CC-009	OU2B-06	-CC-008	OU2B-06-	CC-007	OU2B-06-	·CC-006	OU2B-06-	-CC-005	OU2B-06	-CC-010	OU2B-06-	-CC-003	OU2B-06	-CA-C3
0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0
A1016	<19	A1016	<19	A1016	<42	A1016	<41	A1016	<19	A1016	<20	A1016	<19	A1016	<19	A1016	<95
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A1242	120	A1242	52	A1242	61	A1242	78	A1242	160	A1242	140	A1242	25	A1242	140	A1242	380
A1248	<19	A1248	<19	A1248	<42	A1248	<41	A1248	<19	A1248	<20	A1248	<19	A1248	<19	A1248	<95
A1254	300	A1254	54	A1254	48	A1254	140	A1254	260	A1254	320	A1254	25	A1254	320	A1254	630
A1260	150	A1260	75	A1260	<42	A1260	98	A1260	210	A1260	150	A1260	20	A1260	220	A1260	520
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A



OU2B-06		OU2B-06		OU2B-06		OU2B-06-		OU2B-06		OU2B-06-		OU2B-06-		OU2B-06		OU2B-06	
0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0
A1016	<19	A1016	<110	A1016	<76	A1016	<19	A1016	<57	A1016	<19	A1016	<19	A1016	<19	A1016	<38
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A1242	94	A1242	350	A1242	400	A1242	66	A1242	240	A1242	85	A1242	62	A1242	62	A1242	310
A1248	<19	A1248	<110	A1248	<76	A1248	<19	A1248	<57	A1248	<19	A1248	<19	A1248	<19	A1248	<38
A1254	64	A1254	650	A1254	470	A1254	46	A1254	330	A1254	75	A1254	170	A1254	46	A1254	470
A1260	29	A1260	450	A1260	310	A1260	20	A1260	230	A1260	38	A1260	100	A1260	<19	A1260	360
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A
OU	2B	OU	2B	OU	2B	OU	2B	OU2	2B	OU	2B	OU	2B	OU	2B	OU2	2B
OU2B-06	GS-C4	OU2B-06	-CC-011	OU2B-06	-GS-C2	OU2B-06-	-SB-001	OU2B-06	-DR-C5	OU2B-06	-DR-C4	OU2B-06	-DR-C3	OU2B-06	-DR-C2	OU2B-06	-DR-C1
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A1242	59	A1242	54	A1242	55	A1242	85	A1242	420	A1242	230	A1242	320	A1242	220	A1242	150
A1248	<19	A1248	<24	A1248	<19	A1248	<19	A1248	<38	A1248	<19	A1248	<19	A1248	<19	A1248	<19
A1254	44	A1254	56	A1254	36	A1254	69	A1254	570	A1254	210	A1254	330	A1254	220	A1254	120
A1260	<19	A1260	34	A1260	<19	A1260	24	A1260	330	A1260	110	A1260	240	A1260	140	A1260	46
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A
OU	2B	OU	2B	OU	2B	OU	2B	OU2	2B	OU	2C	OU	2C	OU	2C	OU2	2C
OU2B-06	-CC-016	OU2B-06	-CC-014	OU2B-06-	-CC-013	OU2B-06-	CC-012	OU2B-06	-GS-C3	OU2C-06-	WA-005	OU2C-06-	-WA-006	OU2C-06-	WA-007	OU2C-06-	WA-008
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A1242	130	A1242	78	A1242	88	A1242	130	A1242	52	A1242	84	A1242	46	A1242	92	A1242	220
A1248	<76	A1248	<19	A1248	<19	A1248	<19	A1248	<19	A1248	<19	A1248	<21	A1248	<19	A1248	<38
A1254	570	A1254	120	A1254	93	A1254	130	A1254	47	A1254	110	A1254	57	A1254	170	A1254	180
A1260	400	A1260	160	A1260	70	A1260	120	A1260	<19	A1260	47	A1260	26	A1260	78	A1260	49
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A



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A1248	<19	A1248	<19	A1248	<19	A1248	<38	A1248	<57	A1248	<190	A1248	<190	A1248	<38	A1248	<19
A1254	120	A1254	91	A1254	140	A1254	300	A1254	340	A1254	740	A1254	610	A1254	220	A1254	150
A1260	51	A1260	37	A1260	57	A1260	93	A1260	110	A1260	210	A1260	<190	A1260	64	A1260	78
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A
OU	12C	OU	2C	OU	2C	OU	2C	OU2	2C	OU	2C	OU	2C	OU	2C	OU2	2C
OU2C-06	-WA-015	OU2C-06-	WA-003	OU2C-06-	-WA-002	OU2C-06-	WA-001	OU2C-06-	-SB-023	OU2C-06	-SB-022	OU2C-06	S-SB-020	OU2C-06	-SB-016	OU2C-06-	-SB-014
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A1232	<130	A1232	<19	A1232	<19	A1232	<19	A1232	<19								
A1242	490	A1242	70	A1242	120	A1242	66	A1242	51	A1242	42	A1242	110	A1242	86	A1242	47
A1248	<130	A1248	<19	A1248	<19	A1248	<19	A1248	<19								
A1254	710	A1254	110	A1254	210	A1254	130	A1254	27	A1254	29	A1254	140	A1254	84	A1254	41
A1260	190	A1260	43	A1260	85	A1260	49	A1260	<19	A1260	<19	A1260	77	A1260	43	A1260	<19
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A
OU	12C	OU	2C	OU	2C	OU	2C	OU2	2C	OU	2C	OU	2C	OU	2C	OU2	2C
OU2C-06	S-SB-012	OU2C-06	-SB-008	OU2C-06	-SB-010	OU2C-06	-SB-011	OU2CR-06	6-CA-C3	OU2C-06	-SB-019	OU2C-06	S-GS-C5	OU2C-06	S-CA-C2	OU2C-06-	-SB-006
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A1242	52	A1242	43	A1242	41	A1242	180	A1242	270	A1242	88	A1242	65	A1242	380	A1242	71
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A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A



OU2C-06		OU2C-06		OU2C-06		OU2C-06		OU2C-06		OU2C-06		OU OU2C-06		OU2C-06		OU2C-06-	
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A1260	65	A1260	<19	A1260	22	A1260	38	A1260	<19	A1260	<19	A1260	290	A1260	130	A1260	37
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A
OU	2C	OU	2C	OU	2C	OU	2C	OU2	2C	OU	2C	OU	2C	OU	2C	OU	13
OU2C-06	S-DR-C4	OU2C-06	-CA-C1	OU2C-06	-CA-C4	OU2C-06-	-SB-007	OU2C-06	-CA-C5	OU2C-06	-DR-C1	OU2C-06	S-DR-C2	OU2C-06	-DR-C3	OU3R-06	-GS-C5
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A1260	320	A1260	330	A1260	160	A1260	21	A1260	350	A1260	150	A1260	97	A1260	220	A1260	53
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A
Ol	J3	OU	13	OU	13	OU	13	OU	13	OU	13	Ol	J3	OL	J3	OU	13
OU3-06-	WA-011	OU3-06-	CA-C2	OU3-06-	CA-C1	OU3-06-\	VA-010	OU3-06-	CA-C3	OU3-06-\	VA-012	OU3-06-	WA-013	OU3-06-\	VA-014	OU3R-06	-CA-C1
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A1260	30	A1260	300	A1260	160	A1260	38	A1260	360	A1260	77	A1260	170	A1260	160	A1260	190
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A



OU3-06-		OU3-06-		OU3-06-\		OU3-06-\		OU3-06-									
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A1260	280	A1260	100	A1260	110	A1260	45	A1260	410	A1260	48	A1260	41	A1260	68	A1260	69
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A
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OU3-06-	SB-014	OU3-06-	SB-008	OU3-06-\	VA-001	OU3-06-	SB-007	OU3-06-V	VA-003	OU3-06-\	WA-004	OU3-06-\	WA-005	OU3-06-\	VA-006	OU3-06-\	WA-007
0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0
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A1254	37	A1254	80	A1254	280	A1254	76	A1254	170	A1254	160	A1254	130	A1254	140	A1254	600
A1260	20	A1260	30	A1260	120	A1260	27	A1260	52	A1260	60	A1260	35	A1260	33	A1260	<190
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A
OL	J3	OU	13	OU	13	OL	13	OU	13	OL	J3	OL	J3	OL	J3	OL	J3
OU3-06-\	800-AW	OU3-06-	SB-016	OU3-06-	GS-C4	OU3-06-	DR-C2	OU3-06-	DR-C3	OU3-06-	DR-C4	OU3-06-	DR-C5	OU3-06-	GS-C1	OU3-06-	SB-009
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A1248	<38	A1248	<19	A1248	<19	A1248	<76	A1248	<19	A1248	<95	A1248	<95	A1248	<24	A1248	<19
A1254	140	A1254	100	A1254	100	A1254	630	A1254	230	A1254	1000	A1254	690	A1254	51	A1254	130
A1260	40	A1260	43	A1260	48	A1260	260	A1260	110	A1260	410	A1260	530	A1260	<24	A1260	50
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A



OU3-06-		OU3-06-		OU3-06-		OU3-06-		OU3-06-9		OU3-06-		OU3-06-		OU3-06-		OU3-06-	
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A1260	24	A1260	190	A1260	58	A1260	34	A1260	<19	A1260	22	A1260	34	A1260	27	A1260	37
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OL	J3	Ol	J4	OL	J4	OL	J4	OU	14	OU	14	OL	J4	OL	14	OU	14
OU3-06-	-GS-C2	OU4-06-	WA-006	OU4-07-	SB-017	OU4-07-	SB-003	OU4-07-5	SB-004	OU4-07-	SB-005	OU4-07-	SB-006	OU4-07-	SB-007	OU4-07-	SB-008
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A1248	<19	A1248	<19	A1248	<19	A1248	<38	A1248	<95	A1248	<19	A1248	<57	A1248	<57	A1248	<76
A1254	69	A1254	160	A1254	150	A1254	88	A1254	170	A1254	120	A1254	350	A1254	140	A1254	190
A1260	30	A1260	42	A1260	68	A1260	<38	A1260	<95	A1260	47	A1260	110	A1260	<57	A1260	<76
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Ol	J4	Ol	J4	OL	J4	OL	J4	OU	14.	OU	14	OL	J4	OL	14	OU	14
OU4-07-	SB-009	OU4-07-	SB-010	OU4-07-	SB-013	OU4-06-	-CA-C1	OU4-07-9	SB-002	OU4-07-	SB-016	OU4-07-	SB-012	OU4-O6-	SB-001	OU4-O6-	SB-002
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A1242	240	A1242	260	A1242	290	A1242	2200	A1242	220	A1242	50	A1242	94	A1242	230	A1242	370
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OU4-O6		OU4-06-		OU4-O6-		OU4-06-V		OU4-06-V		OU4R-06		OU4R-06		OU4R-06		OU4-06-V	
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Ol	J4	Ol	J4	OL	J4	OU	14	OU	14	Ol	J4	Ol	J4	OL	J4	OU	14
OU4-07-	-SB-015	OU4-06-	-CA-C5	OU4-06-	-CA-C2	OU4-07-	SB-014	OU4-06-	CA-C4	OU4-06-	WA-016	OU4-06-	DR-C1	OU4-06-	DR-C2	OU4-06-	DR-C3
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A1260	160	A1260	1000	A1260	360	A1260	80	A1260	880	A1260	63	A1260	170	A1260	180	A1260	170
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A
Ol	J4	Ol	J4	OL	J4	OU	14	OU	14	Ol	J4	OL	J4	OL	J4	OU	14
OU4-06	-DR-C4	OU4-06-	DR-C5	OU4-06-	GS-C1	OU4-06-	GS-C2	OU4-06-	GS-C3	OU4-06-	WA-013	OU4-06-	-CA-C3	OU4-06-	GS-C4	OU4-06-V	VA-014
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A1260	390	A1260	240	A1260	51	A1260	42	A1260	32	A1260	38	A1260	800	A1260	63	A1260	100
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OU4-06-		OU4-06-\		OU4-06-\		OU4-06-\		OU4-06-V		OU4-06-\		OU4-06-		OU4-06-\		OU4-06-V	
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A1260	34	A1260	22	A1260	43	A1260	50	A1260	38	A1260	26	A1260	93	A1260	58	A1260	270
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OU OU5AR-0		OU5A-06-		OU5A-07		OU5A-06		OU5A-06-		OU5A-06-		OU5A-06		OU5A-06		OU5A-06	
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A1221	<19	A1221	<24	A1221	<19	A1221	<48	A1221	<19	A1221	<12	A1221	<38	A1221	<38	A1221	<57
A1232	<19	A1232	<24	A1232	<19	A1232	<48	A1232	<19	A1232	<12	A1232	<38	A1232	<38	A1232	<57
A1242	120	A1242	<24	A1242	78	A1242	<48	A1242	150	A1242	<12	A1242	610	A1242	410	A1242	660
A1248	<19	A1248	560	A1248	<19	A1248	1100	A1248	<19	A1248	300	A1248	<38	A1248	<38	A1248	<57
A1254	160	A1254	210	A1254	49	A1254	690	A1254	67	A1254	130	A1254	210	A1254	250	A1254	250
A1260	26	A1260	54	A1260	20	A1260	270	A1260	25	A1260	37	A1260	65	A1260	57	A1260	70
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A
OU	5A	OU	5A	OU:	5A	OU	5A	OU!	5A	OU	5A	OU	5A	OU	5A	OU!	SΑ
OU5A-06	S-CA-C5	OU5A-06-	-CC-002	OU5A-06	-DR-C1	OU5A-06	-DR-C2	OU5A-06	-DR-C3	OU5A-06	-DR-C5	OU5A-06	GS-C1	OU5A-06	-GS-C2	OU5A-06-	SB-003
0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0
A1016	<19	A1016	<95	A1016	<76	A1016	<95	A1016	<95	A1016	<130	A1016	<19	A1016	<19	A1016	<19
A1221	<19	A1221	<95	A1221	<76	A1221	<95	A1221	<95	A1221	<130	A1221	<19	A1221	<19	A1221	<19
A1232	<19	A1232	<95	A1232	<76	A1232	<95	A1232	<95	A1232	<130	A1232	<19	A1232	<19	A1232	<19
A1242	260	A1242	340	A1242	430	A1242	480	A1242	630	A1242	520	A1242	180	A1242	210	A1242	250
A1248	<19	A1248	<95	A1248	<76	A1248	<95	A1248	<95	A1248	<130	A1248	<19	A1248	<19	A1248	<19
A1254	170	A1254	610	A1254	380	A1254	490	A1254	520	A1254	670	A1254	110	A1254	110	A1254	150
A1260	50	A1260	180	A1260	140	A1260	180	A1260	210	A1260	280	A1260	28	A1260	31	A1260	53
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A
OU	5A	OU:	5A	OU:	5A	OU	5A	OU!	5A	OU	5A	OU	5A	OU	5B	OU!	iB.
OU5A-06	GS-C3	OU5A-06	-GS-C4	OU5A-06	-GS-C5	OU5A-06	-SB-001	OU5A-06	-DR-C4	OU5A-06	-SB-002	OU5A-06	S-CA-C4	OU5B-06-	-WA-012	OU5B-07-	SB-003
0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0
A1016	<19	A1016	<19	A1016	<19	A1016	<19	A1016	<130	A1016	<19	A1016	<57	A1016	<19	A1016	<38
A1221	<19	A1221	<19	A1221	<19	A1221	<19	A1221	<130	A1221	<19	A1221	<57	A1221	<19	A1221	<38
A1232	<19	A1232	<19	A1232	<19	A1232	<19	A1232	<130	A1232	<19	A1232	<57	A1232	<19	A1232	<38
A1242	160	A1242	140	A1242	150	A1242	270	A1242	620	A1242	240	A1242	530	A1242	99	A1242	<38
A1248	<19	A1248	<19	A1248	<19	A1248	<19	A1248	<130	A1248	<19	A1248	<57	A1248	<19	A1248	<38
A1254	160	A1254	92	A1254	170	A1254	150	A1254	740	A1254	110	A1254	280	A1254	140	A1254	250
A1260	33	A1260	26	A1260	31	A1260	43	A1260	370	A1260	43	A1260	76	A1260	38	A1260	120
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A



OU OU5B-07		OU5B-07-		OU5B-06-		OU5B-06-		OU5B-06-1		OU5B-06-		OU5B-07		OU5B-07		OU5B-06-	
0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0
A1016	<57	A1016	<19	A1016	<19	A1016	<19	A1016	<19	A1016	<19	A1016	<19	A1016	<38	A1016	<19
A1221	<57	A1221	<19	A1221	<19	A1221	<19	A1221	<19	A1221	<19	A1221	<19	A1221	<38	A1221	<19
A1232	<57	A1232	<19	A1232	<19	A1232	<19	A1232	<19	A1232	<19	A1232	<19	A1232	<38	A1232	<19
A1242	<57	A1242	<19	A1242	72	A1242	93	A1242	96	A1242	110	A1242	<19	A1242	<38	A1242	58
A1248	<57	A1248	<19	A1248	<19	A1248	<19	A1248	<19	A1248	<19	A1248	<19	A1248	<38	A1248	<19
A1254	310	A1254	160	A1254	130	A1254	140	A1254	170	A1254	69	A1254	130	A1254	350	A1254	92
A1260	210	A1260	75	A1260	37	A1260	43	A1260	54	A1260	<19	A1260	59	A1260	150	A1260	26
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A
OU	5B	OU!	5B	OU:	5B	OU:	5B	OU5	5B	OU!	5B	OU	5B	OU:	5B	OU!	5B
OU5B-07	-SB-005	OU5B-07-	-SB-006	OU5B-07	-SB-007	OU5B-07	-SB-008	OU5B-07-	SB-009	OU5B-07-	-SB-010	OU5B-07	-SB-011	OU5B-07	-SB-012	OU5B-07-	-SB-013
0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0
A1016	<76	A1016	<38	A1016	<38	A1016	<57	A1016	<38	A1016	<38	A1016	<38	A1016	<38	A1016	<19
A1221	<76	A1221	<38	A1221	<38	A1221	<57	A1221	<38	A1221	<38	A1221	<38	A1221	<38	A1221	<19
A1232	<76	A1232	<38	A1232	<38	A1232	<57	A1232	<38	A1232	<38	A1232	<38	A1232	<38	A1232	<19
A1242	<76	A1242	<38	A1242	<38	A1242	<57	A1242	<38	A1242	<38	A1242	<38	A1242	39	A1242	22
A1248	<76	A1248	<38	A1248	<38	A1248	<57	A1248	<38	A1248	<38	A1248	<38	A1248	<38	A1248	<19
A1254	830	A1254	160	A1254	230	A1254	440	A1254	290	A1254	140	A1254	110	A1254	390	A1254	280
A1260	390	A1260	68	A1260	96	A1260	200	A1260	140	A1260	79	A1260	60	A1260	150	A1260	120
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A
OU	5B	OU:	5B	OU:	5B	OU:	5B	OU5	5B	OU:	5B	OU	5B	OU:	5B	OU!	5B
OU5B-06	-WA-011	OU5B-07	-SB-015	OU5B-06	-GS-C5	OU5BR-0	6-GS-C2	OU5B-07-	SB-014	OU5B-06	-GS-C3	OU5B-06	S-CA-C1	OU5B-06	-CA-C2	OU5B-06	-CA-C3
0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0
A1016	<38	A1016	<19	A1016	<19	A1016	<19	A1016	<19	A1016	<19	A1016	<19	A1016	<19	A1016	<19
A1221	<38	A1221	<19	A1221	<19	A1221	<19	A1221	<19	A1221	<19	A1221	<19	A1221	<19	A1221	<19
A1232	<38	A1232	<19	A1232	<19	A1232	<19	A1232	<19	A1232	<19	A1232	<19	A1232	<19	A1232	<19
A1242	150	A1242	<19	A1242	120	A1242	160	A1242	36	A1242	130	A1242	160	A1242	35	A1242	120
A1248	<38	A1248	<19	A1248	<19	A1248	<19	A1248	<19	A1248	<19	A1248	<19	A1248	<19	A1248	<19
A1254	230	A1254	41	A1254	130	A1254	150	A1254	370	A1254	140	A1254	150	A1254	37	A1254	99
A1260	63	A1260	21	A1260	37	A1260	42	A1260	150	A1260	38	A1260	42	A1260	<19	A1260	25
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A



OU5B-06		OU5B-06		OU5B-06		OU5B-06		OU5B-06-		OU5B-06		OU5B-06	5B 6-DR-C5	OU5B-06		OU5B-06	
0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0	0.0	0.0 -	0.0	0.0 -	0.0
A1016	<19	A1016	<76	A1016	<38	A1016	<76	A1016	<95	A1016	<95	A1016	<150	A1016	<19	A1016	<19
A1221	<19	A1221	<76	A1221	<38	A1221	<76	A1221	<95	A1221	<95	A1221	<150	A1221	<19	A1221	<19
A1232	<19	A1232	<76	A1232	<38	A1232	<76	A1232	<95	A1232	<95	A1232	<150	A1232	<19	A1232	<19
A1242	20	A1242	460	A1242	220	A1242	370	A1242	400	A1242	450	A1242	480	A1242	<19	A1242	95
A1248	<19	A1248	<76	A1248	<38	A1248	<76	A1248	<95	A1248	<95	A1248	<150	A1248	<19	A1248	<19
A1254	54	A1254	380	A1254	390	A1254	580	A1254	650	A1254	1200	A1254	1200	A1254	<19	A1254	100
A1260 A1268	<19 N/A	A1260 A1268	110 N/A	A1260 A1268	140 N/A	A1260 A1268	220 N/A	A1260 A1268	260 N/A	A1260 A1268	440 N/A	A1260 A1268	430 N/A	A1260 A1268	<19 N/A	A1260 A1268	30 N/A
			,				,						,				
OU5B-06-		OU5B-06		OU5B-06-		OU5B-06-		OU5B-06-		OU5B-06-		OU5B-06		OU5B-06-		OU5B-06-	
0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0	0.0	0.0 -	0.0	0.0 -	0.0
A1016	<19	A1016	<19	A1016	<19	A1016	<19	A1016	<19	A1016	<19	A1016	<19	A1016	<19	A1016	<19
A1221	<19	A1221	<19	A1221	<19	A1221	<19	A1221	<19	A1221	<19	A1221	<19	A1221	<19	A1221	<19
A1232	<19	A1232	<19	A1232	<19	A1232	<19	A1232	<19	A1232	<19	A1232	<19	A1232	<19	A1232	<19
A1242	61	A1242	120	A1242	35	A1242	<19	A1242	100	A1242	120	A1242	110	A1242	150	A1242	92
A1248	<19	A1248	<19	A1248	<19	A1248	<19	A1248	<19	A1248	<19	A1248	<19	A1248	<19	A1248	<19
A1254	90	A1254	130	A1254	74	A1254	<19	A1254	160	A1254	190	A1254	230	A1254	220	A1254	130
A1260	26	A1260	35	A1260	29	A1260	<19	A1260	43	A1260	55	A1260	62	A1260	67	A1260	38
A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A	A1268	N/A
OU!		OU!		OU!		OU!											
OU5B-06-		OU5B-06-		OU5B-06-		OU5B-06											
0.0 -	0.0	0.0 -	0.0	0.0 -	0.0	0.0 -	0.0										
A1016	<19	A1016	<19	A1016	<19	A1016	<19										
A1221	<19	A1221	<19	A1221	<19	A1221	<19										
A1232	<19	A1232	<19	A1232	<19	A1232	<19										
A1242	100	A1242	44	A1242	110	A1242	100										
A1248	<19	A1248	<19	A1248	<19	A1248	<19										
A1254	190	A1254	90	A1254	170	A1254	110										



31

N/A

Data Source: Fox River Database (2006-2007)

28

N/A

A1260

A1268

54

N/A

A1260

A1268

A1260

A1268

58

N/A

A1260

A1268

ATTACHMENT E

De Minimis Settlement Parties

PRP Facility Fact Sheets



Procter & Gamble (formerly Charmin Paper Co., formerly Hoberg Paper Mills)

According to the 1999 WDNR Tech Memo 2d (Tech Memo 2d), this facility has manufactured bathroom tissue, paper towels, and facial tissue since 1892. Paper manufacturing at this facility includes virgin sulfite, ground wood pulp processing and more recently, the use of virgin - purchased pulp and small amounts of secondary fiber.

Proctor & Gamble (P & G) is located on the east side of the Fox River (FR), mid-way between the mouth of the FR and the FR/East River confluence in Green Bay (OU4). According to the WDNR database of surface water outfalls, P & G has two outfalls to the FR. P & G sent pulp waste to the Green Bay metropolitan sewage treatment plant in the mid 1970's (Tech Memo 2d).

- WPDES Permit # WI 0001031
- SIC Code 2621, 2676
- P & G/Charmin Paper appear on the Monsanto "customer list" of PCB purchasers.

Paper manufacturing at this facility includes virgin sulfite and ground wood pulp processing and more recently, the use of virgin purchased pulp and small amounts of secondary fiber (Tech Memo 2d).

An EDR search and the WDNR BRRTS database located multiple P & G addresses in the Green Bay area with historical environmental enforcement activity, including:

- BRRTS ID# 544100, at 501 Eastman Ave.
- BRRTS ID #9536000 at 620 University Ave.
- These sites are closed ERPs with metals and PAH soil and groundwater contamination

The noted secondary sources have identified the following evidence for PCB discharge and waste handling processes at the P & G Fox River plant:

- PCB detects on 9/25/74, 1/14/76 (see Kleinert, 1976, Table 4)
- A public statement on behalf of Fort Howard circa 1976 stating PCBs are found in every grade of paper, paper products and pulp. PCBs are found in paper produced from wood pulp and they are found in virgin pulp.
- An estimated 0.018 pounds of PCB per day were discharged to the FR from P& G (Kleinert, 1976, Table 5)



- The Government estimated 61-121 pounds of PCB were released to the FR during the time period 1954 1985 from P & G (Amendola Report, 2000)
- The 501 Eastman Ave. address is listed by EDR as a RCRA Large Quantity Generator
- Multiple spills involving fuel oil, process wastewater, and other products have been reported, resulting in soil, groundwater and sewer contamination, with associated and variable impacts to the FR (WDNR BRRTS database)

P & G Fox River Plant was a participant in 1993 Green Bay Mass Balance Study of PCB point source discharge data

• For Total PCB in the time period January, 1989 – May, 1990:

Mean Influent PCB (ng/L)	Mean Effluent PCB (ng/L)	Mean Flow (Mgal/day)	Mean PCB Gross Load (g/day)	Mean PCB Discharger Net Load (g/day)
35.52	22.62	4.33	0.39	-0.22

(ATS, Oct, 2008 WDNR file search)

International Paper Company

International Paper (SIC Code 2621, 2672) has three facilities on the FR as follows:

- Akrosil Corporation facility at 206 Garfield Ave., Menasha (OU1)
- Thilmany Paper Co. at 600 Thilmany Rd., Kaukauna (OU2)
- Nicolet Division (Charmin Paper) at 200 Main Ave., De Pere (OU4)

International Paper appears on the 1970-72 Monsanto Chemical Company "customer list" of PCB purchasers.

Akrosil Corporation

Akrosil was founded in 1917 as the Edgewater Paper Company. In its early years, Edgewater produced gummed tape and gummed sanitary paper used on the headrests of chairs in barbershops. In the 1960's, the silicone coated release paper business was developed here. In 1969, the company was acquired by Kapral who changed the name to Akrosil. During the 1970's, Akrosil branched out into the disposable diaper, automotive, pressure-sensitive tape, and sanitary napkin markets. In 1975, the Hammermill Paper Company acquired Akrosil. In 1986, International Paper acquired Hammermill Paper. (Source: Akrosil Company Profile at http://orlando.bizjournals.com/gen/company.html)

- •
- International Paper, Akrosil has a Neenah Menasha Industrial User Permit #NMSC-004-7 (ATS, Oct, 2008 WDNR file search)
- WDNR BRRTS location ID #957100 for an open Wisconsin ERP case of soil and groundwater contamination involving petroleum products, leaded and unleaded gasoline, diesel fuel, and engine waste oil.
- Akrosil is a RCRA large quantity generator, ID # WID086685997 (EPA, Envirofacts, Facility Registry System)
- Underground and above ground chemical storage tanks on the site (EDR)
- Multiple spills are documented which resulted in surface water and soil contamination (EDR and WDNR BRRTS database)

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Thilmany Paper Co.

Thilmany is located on a 125 acre island in the FR at Kaukauna. The Thilmany Mill was founded in 1883 as Thilmany Pulp and Paper Co., and operated independently until it was acquired by Hammermill in 1969. In 1986, International Paper acquired Hammermill/Thilmany. Thilmany operated as part of International Paper's Industrial Papers Business until June, 2005, when the business was acquired by Kohlberg and Company. As part of International Paper's specialty industrial papers division, the plant manufactured a wide range of products, from candy wrappers and juice cartons, to electrical cables and game boards.(Source: www.thilmany.com/history.htm and www.p2pays/org/ref/04/03150.htm)

The noted secondary sources have identified the following evidence for PCB discharge and waste handling processes at Thilmany Paper:

- Composite sample from Lagoon 2 effluent on October 20, 1975 contained 0.1 ppb PCB (Kleinert, 1976, Table 4)
- Manifest DOC ID # WIK528322 dated 2/28/06 for disposal of 732 lb. PCB from Thilmany
- The site contains a tank farm with several chemical leaking underground and above ground storage tanks. (EDR and WDNR BRRTS database)
- Multiple spills are reported involving free product, soil and groundwater contamination and possible impact to the FR. (WDNR BRRTS database)
- Thilmany is a RCRA small quantity generator; RCRA ID # WID 046538666 (EDR)
- BRRTS location ID #808500 for a closed ERP
- WPDES Permit #WI-0000825 for 11 outfalls: 7 for noncontact cooling water, storm water, fire system water, groundwater infiltration that is free from process WW and 4 for treated process WW and treatment pond seepage. Recent permit parameters include BOD, TSS, temperature, pH, mercury, WET, Chloride, aluminum. The permit file revealed periodic upsets and permit exceedances in 2003, permit exceedances in 2005, and untreated discharges to the FR in 2007. (ATS, Oct, 2008 WDNR file search; files date to 1997)
- Lagoons and aerated lagoons used to treat process waste water (Tech Memo 2d)
- Thilmany was a participant in 1993 Green Bay Mass Balance Study of PCB point source discharge data. Total PCB in the time period April, 1989 April, 1990:



Mean Influent PCB (ng/L)	Mean Effluent PCB (ng/L)	Mean Flow (Mgal/day)	Mean PCB Gross Load (g/day)	Mean PCB Discharger Net Load (g/day)
26.13	8.75	17.08	0.60	-1.29

(ATS, Oct, 2008 WDNR file search)

Nicolet (De Pere) Division

The Nicolet Mill in De Pere began operations in 1892 under Kimberly Clark, manufacturing high-grade writing papers from cotton cloth. It closed in 1922, and re-opened in 1927 under the ownership of the Wisconsin Industrialists Group, manufacturing glassine and greaseproof papers made from wood pulp. Nicolet was acquired by Hammermill in 1985 and joined International Paper as part of the Hammermill acquisition in 1986. (Source: www.thilmany.com/history.htm and www.p2pays/org/ref/04/03178.htm)

- WPDES Permit # WI-0001473 (ATS, Oct, 2008 WDNR file search)
- BRRTS location ID #1096200 for a closed ERP
- Multiple spills are reported involving petroleum products and mineral oil impacting the soil and groundwater possibly, the FR (WDNR BRRTS database)
- Nicolet is a RCRA small quantity generator (ERD)
- Outside transformer yard is evident on aerial photos from 1969, 1973, and 1978 (USEPA, 2006, Aerial photographic analysis of Fox River NRDA PCB Releases, TS-PIC-20605612S)

Wisconsin Public Service Corporation (WPSC)

There are multiple facilities associated with this company throughout the FR area. WPSC (SIC Code 4911) has distributed natural gas and electric power for residential and commercial consumers since 1883. Addresses for WPSC properties that have been identified in the WDNR BRRTS database:

- 600 + 700 North Adams Street, Green Bay (OU4)
- 1530 North Bylsby Avenue, Green Bay (OU4)
- 2850 South Ashland Avenue, Ashwaubenon (OU4)
- 1101 Ashwaubenon St., Ashwaubenon (OU4)
- 2763 South Oneida Street, Ashwaubenon (OU4)
- 750 Baeten Road, Ashwaubenon (OU4)
- 721 Gray Street, Green Bay (OU4)
- 412 Porlier Street, Green Bay (OU4)
- 3939 Agamite Avenue, Green Bay (OU4)
- 220 South Michigan, De Pere (OU3)
- 1997 Venture Ave., De Pere (OU3)
- 1206 Velp Ave., Green Bay (OU5)
- 2095 White Oak, Green Bay (OU4)

The release of PCBs, including Aroclors 1016, 1242, 1254 and 1260 into the environment from dielectric oils used by the power industry is widely documented throughout the United States. It is likely that environmentally significant leakage from PCB-containing electrical equipment such as transformers, capacitors, circuit breakers, voltage regulators has occurred at WPSC properties.

WPSC – 700 North Adams Street

• Location of a former coal gasification plant



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- Listed on PCB Activity (PADS) and EPA TSCA databases
- RCRA small quantity generator
- USEPA Tier 2 facility
- BRRTS location ID# 4279500 for an open ERP
- BRRTS location ID# 689300 for a closed LUST
- USEPA Facility ID No. WID007947435 (USEPA PCB Waste Handlers Database)
- WDNR BRRTS reports spills involving ammonia and polynuclear aromatic hydrocarbons resulting in soil contamination.

WPSC – 1530 North Bylsby Avenue

- Pulliam Power Plant a coal fired steam electric generating station. Condenser cooling water, demineralizer wastewater, boiler blowdown, bottom ash transport water and air heater wash water are discharged at the mouth of the FR via a canal (NPDES Permit Fact Sheet, May 2001)
- WPDES Permit # WI 0000965 for outfalls to FR near its mouth
- RCRA small quantity generator
- WDNR BRRTS database cites numerous spills at this site including a 1993 diesel fuel spill of 30 gallons, a 1993 LUST involving unleaded gasoline to soil, and a 20 gallon petroleum leak from a crane
- Multiple aboveground and underground storage tank closures, with soil and groundwater impacts (WDNR BRRTS database)
- BRRTS location ID # 538700 for a closed LUST

WPSC – 2850 South Ashland Ave., Ashwaubenon

- USEPA Facility ID No. WID000808329 (US EPA PCB Waste Handlers Database)
- Listed on PADS (ERD)



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- RCRA small quantity generator (ERD)
- TIER 2 reports for Facility ID # 45919 list transformer oil containing 0-449 ppm PCB (ERD)
- WDNR BRRTS database lists multiple leaking underground storage tank incidents, and chemical spills resulting in soil and groundwater contamination and including mineral oil releases from transformers
- "Open" WDNR ERP incident involving soil contamination with chlorinated solvents

WPSC – 1101 Ashwaubenon Street, Ashwaubenon

• WDNR BRRTS database reports a 1996 spill of 32 gallons of mineral oil

WPSC – 2763 South Oneida Street, Ashwaubenon

 WDNR BRRTS database lists three petroleum releases to the soil from transformer leaks, with potential groundwater contamination

WPSC – 750 Baeten Road, Ashwaubenon

- WDNR BRRTS database reports a 1993 petroleum spill of 8 gallons from a transformer; potential impact to the Fox River
- WDNR BRRTS database reports a 2002 spill of 100 gallons mineral oil

WPSC – 721 Gray Street

• Site of a PCB spill, date 8/17/88 (WDNR, BRRTS database)

WPSC – 412 Porlier Street

• Site of a 1999, spill of 2 gallons of mineral oil, disposed as a TSCA waste and therefore, likely contained PCB (WDNR BRRTS database)



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WPSC – 3939 Agamite Avenue

• Site of a 1997 10 gallon petroleum release due to a transformer overheat and overload. (WDNR BRRTS database)

WPSC – 220 South Michigan, De Pere

• WDNR BRRTS database reports a 1996 release of 70 gallons mineral oil

WPSC – 1997 Venture Ave., De Pere

• WDNR BRRTS database reports a 1999 release of 90 gallons mineral oil

WPSC – 1206 Velp Ave., Green Bay

• WDNR BRRTS database reports a 1992 spill of 100 gallons of oil and grease impacting the sanitary sewer

WPSC – 2095 White Oak, Green Bay

• WDNR BRRTS database reports a 1996 spill of 20 gallons mineral oil



Green Bay Packaging (GBP)

There are multiple facilities associated with this company throughout the FR area. Green Bay Packaging (GBP) (SIC Code 2631, 2653) is a paper products company, manufacturing a variety of products including folding paperboard boxes since 1969. It is also the former Green Bay Paper and Pulp Corporation, a paper mill.

GBP appears on the 1970-72 Monsanto Chemical Company "customer list "of PCB purchasers.

The Government estimated 23-47 pounds of PCB were released to the FR during the time period 1954 – 1985 from GBP facilities (Amendola Report, 2000)

Aroclor 1242 positives were detected in final effluent from GBP for the time period 1974-1977 (Tech Memo 2d, Appendix C)

Addresses for GBP sites that have been identified:

- 2001 American Blvd., De Pere (OU3)
- 1601 North Quincy St., Green Bay (OU4)
- 1700 Webster Court, Green Bay (OU4)
- 3250 South Ridge Road, Green Bay (OU4)
- Cormier Drive, Ashwaubenon (OU4)

GBP – 2001 American Blvd., De Pere

- RCRA very small quantity generator (WDNR BRRTS)
- WDNR BRRTS report of a 1991 spill of 100 gallons diesel oil

GBP – 1601 North Quincy St., Green Bay

• WDNR BRRTS database reports numerous industrial chemical spills to soil with potential impacts to surface water. Contaminants include VOC, petroleum and mineral oil, hydraulic fluids, heating fuel, fertilizers, and wastewater overflows



- WDNR BRRTS database Activity No.02-05-255348 for a PCB release with soil and groundwater impacts. Closure plan included land use controls and property deed restrictions
- RCRA very small quantity generator (WDNR BRRTS database)
- WPDES Permit # WI 0000973 for discharge to the FR
- BRRTS location ID # 541100 for a closed ERP
- Used reverse osmosis to treat waste in mid 70's, later advanced tertiary treatment. Discharge about 1.5 miles from mouth of FR on east side (Tech Memo 2d)
- Participant in 1993 Green Bay Mass Balance Study of PCB point source discharge data. For Total PCB in the time period January, 1989 May, 1990:

Mean Influent PCB (ng/L)	Mean Effluent PCB (ng/L)	Mean Flow (Mgal/day)	Mean PCB Gross Load (g/day)	Mean PCB Discharger Net Load (g/day)
37.86	41.71	1.92	0.30	0.02

(ATS, Oct, 2008 WDNR file search)

GBP – 1700 North Webster, Green Bay

• 1997 spill in parking lot (WDNR BRRTS database)

GBP – 3250 South Ridge Rd., Green Bay

- Aroclor 1242 detected on 10/21/74 at 0.45 ppb. (Kleinert, 1976)
- RCRA small quantity generator (WDNR BRRTS)
- 1976 Transformer explosion and fire resulted in mineral oil release and potential impact to Fox River (WDNR BRRTS database)
- PCB discharges documented for 1974, 1977 (Tech Memo 2d)



Green Bay Metropolitan Sewerage District, Green Bay Location (GBMSD)

GBMSD is located at 2231 North Quincy St., Green Bay (OU4). It has provided municipal wastewater treatment operations for the City of Green Bay since the 1930's.

The noted secondary sources have identified the following evidence for PCB discharge and waste handling processes at GBMSD:

- Aroclor 1254 positives in GBMSD final effluent and sludge for the time period 1972-1976 (Tech Memo 2d)
- Major by-passing of untreated wastes and combined sewer overflows have occurred throughout the history of the plant (Tech Memo 2d)
- GBMSD received treated pulp waste from Proctor & Gamble and James River in late 70s and early 80s. (Tech Memo 2d)
- WPDES Permit # WI-0020991 for discharge to Green Bay
- BRRTS location ID # 918400 and # 954800 for closed ERPs
- Effluent testing on 2/19/73 and 8/1/73 found 0.44 ppb and 0.28 ppb Aroclor 1254. Effluent testing on 1/21/76 found 0.40 ppb Aroclor 1242
- Estimated discharge of 0.119 lbs/day PCB to the FR (Kleinert, 1976)
- Detectable PCB concentrations of Aroclor 1254, 1242 and unspecified PCB with 47 detects out of 69 samples collected between 1972 and 1983 (Tech Memo 2d)
- Participant in 1993 Green Bay Mass Balance Study of PCB point source discharge data. For Total PCB in the time period January, 1989 May, 1990:

Mean Effluent PCB (ng/L)	Mean Flow (Mgal/day)	Mean PCB Gross Load (g/day)	Mean PCB Discharger Net Load (g/day)
4.36	28.9	0.47	0.47

(ATS, Oct, 2008 WDNR file search)



Heart of Valley POTW (HOV)

HOV is located at 801 Thilmany Rd., Kaukauna (OU2). The sewer district was established in the mid-1970's and provides municipal wastewater treatment operations for Kimberly and Kaukauna.

- WPDES Permit #WI 0031232 for discharge to the FR. Outfall is located below lower Kaukauna Dam, just below Thilmany Division discharge (Tech Memo 2d)
- Reported PCB discharges to the FR (Tech Memo 2)
- Participant in 1993 Green Bay Mass Balance Study of PCB point source discharge data.
 For Total PCB in the time period January, 1989 April, 1990:

Mean Effluent PCB (ng/L)	Mean Flow (Mgal/day)	Mean PCB Gross Load (g/day)	Mean PCB Discharger Net Load (g/day)
4.69	3.80	0.07	0.07

(ATS, Oct, 2008 WDNR file search)

• HOV POTW receives industrial process wastewater from a variety of industries that are likely historical users and purchasers of PCB-containing products. Specifically, oil recycling, metal casting, metal finishing, and pulp and paper companies are Industrial Pretreatment Program (IPP) users in the HOV sewage district, including:

Van Zeeland Mfg. (metal finishing)

Wisconsin Chromium Remedial Site (chrome plating cleanup)

Chief Waste Oil Recycling (used oil reclaimer)

Jack's Pizza (oil separator)

Lamar's Dairy (dairy production)

Bel/Kaukauna Cheese (cheese production)

Simon's Cheese (grease removal)

Thiel Cheese (grease removal)

Governmental Canal @ Lock #5 (outfall to Fox River)

Badger Northland (Pb and Cr exceedances)

Roloff Mfg. (metal molding and casting)

Thilmany Pulp & Paper

Presto Products

Gutsman Chevrolet and other auto dealerships

C.W Transport

Wisconsin Chromium (Better Brite)



George Whiting Paper Co.

George F. Whiting Paper Company was founded in 1882 and is currently owned and operated by the 4th and 5th generation of the Whiting family. G.F. Whiting specializes in fine art papers and manufactures text and cover papers using 100% recycled fiber for some grades (www.whitingpaper.com).

- Located at 100 River St., Menasha (OU1).
- Classified as a categorical discharger (Pulp & Paper) to the Neenah Menasha POTW and has been issued Neenah Menasha Industrial User permit # NMSC-003-7. (ATS, Oct, 2008 WDNR file search)
- Effluent discharges to Neenah Menasha POTW (Tech Memo 2d)
- IPP permit application gives average flow of 300,000 gpd with 95% process wastewater from Whiting Paper. Treatment prior to discharge to POTW includes centrifugation, sedimentation, water recycling (ATS, Oct, 2008 WDNR file search)
- NM POTW Significant Industrial Dischargers Summary describes George Whiting Paper as pulp and paper conversion and manufacturing using recycled paper. Discharge is characterized as process waste water containing heavy metals and domestic wastewater. (ATS, Oct, 2008 WDNR file search)
- USEPA Tier 2 facility (EDR)
- Sanborn Fire Insurance Maps from 1948 and 1958 locate multiple outside transformer pads on or within 500 feet of this property address (100 River St., Menasha). Property owners at that time were Menasha Wooden Ware Corporation and John Strange Paper Company, predecessors to G.F. Whiting Paper. (EDR)
- LUST with impacts to groundwater (WDNR BRRTS database)



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LaFarge North America Inc.

LaFarge was founded in 1955 and is in the hydraulic cement manufacturing and aggregate business. It is located at $125\,9^{th}$ Street, Green Bay (OU4).

• SIC #3241

The noted secondary sources have identified the following evidence for PCB discharge and waste handling processes at LaFarge:

- Sanborn Fire Insurance Maps from 1950 and 1970 locate multiple outside transformer pads within 500 feet of this property address. Property owners at that time were Green Bay Drop Forge Site and Huron Portland Cement, predecessors or neighbors to the LaFarge America property (EDR)
- An 1982 spill of unspecified substances and potentially impacting surface waters is reported in the WDNR BRRTS database

Leicht Transfer & Storage Co.

Leight Transfer has been a provider of warehouse and distribution services for over a century. Leight's services include machinery storage, material handling transfer equipment, general warehousing and distribution, receiving, storing and shipping wood pulp and wetlap. Leight has two locations in Green Bay (OU4)

- 1401-55 State St.
- 128 Dousman St
- SIC Code #4213 (Trucking, except Local)

The noted secondary sources have identified the following evidence for PCB discharge and waste handling processes at Leight:

- According to an American Can internal memorandum of 11/13/73 and WDNR BRRTS spill report, Leicht personnel were the cause of a 1973 PCB release at the American Can facility (now Georgia Pacific) located on Day Street in Green Bay. Approximately 300 gallons of PCB-laden Pyranol (General Electric PCB transformer fluid), were spilled with impacts to the East River and ultimately, the Fox River
- BRRTS location ID #3299800 for Dousman St. closed ERP
- BRRTS location ID # 688100 for State St. closed LUST
- Dousman St. facility has a closed, diesel fuel LUST following free product removal and remediation
- State St. facility is a RCRA very small quantity generator (WDNR BRRTS database)
- Three historic chemical releases involving gasoline, diesel fuel and other unspecified substances are reported in WDNR BRRTS database for the State St. location.



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Neenah Foundry Co.

Neenah Foundry (NF), started in 1872, is an iron and steel foundry. It is located at 2121 Brooks Avenue, Neenah (OU1). NF manufactures a variety of iron castings and steel forging products including tree and drainage grates, manhole covers, catch basin traps, frames and grates, curb and wheel guards, and construction castings. Castings used in the manufacture of motors for trucks, cranes, air conditioners, transmissions, farm machinery and ships are also made by NF.

SIC Code # 3320

The noted secondary sources have identified the following evidence for PCB discharge and waste handling processes at NF:

- 2.4 ppb Aroclor 1254 detected in NF effluent on 8/1/75. (Tech Memo 2d, Kleinert, 1976 and NPL Site Narrative)
- Estimated 0.0007 lbs/day of PCB are discharged to the FR (Kleinert, 1976).
- USEPA Tier 2 facility (EDR)
- Estimated discharge to NM POTW 17,000,000 gallons annually. (ATS, Oct, 2008 WDNR file search)
- Historic, surficial and LUST releases of gasoline, diesel fuel and paints, inks and solvents are reported for this facility in WDNR BRRTS database



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Union Pacific Railroad Co.

- WPDES Permit # WI 0001074
- Union Pacific, like most American railroad companies, may have been a purchaser and consumer of PCB products. Specifically, railroads used PCB products in transformers and brake systems
- 40 CFR Part 761 or the Toxic Substances Control Act (TSCA) established prohibitions for the manufacture, processing, distribution, and use of PCB items and materials in the United States. Effectively, these regulations "banned" PCBs. Railroads, however, were granted an exemption under TSCA (40 CFR Part 761.30 (b)) for PCB use in locomotive transformers and self-propelled railcars. PCB fluids and products used in these applications, in concentrations <1000 ppm are allowed. Leaks and spills are inevitable and rail company properties, railyards, and facilities that house, repair or store railcars are frequently contaminated with PCBs.